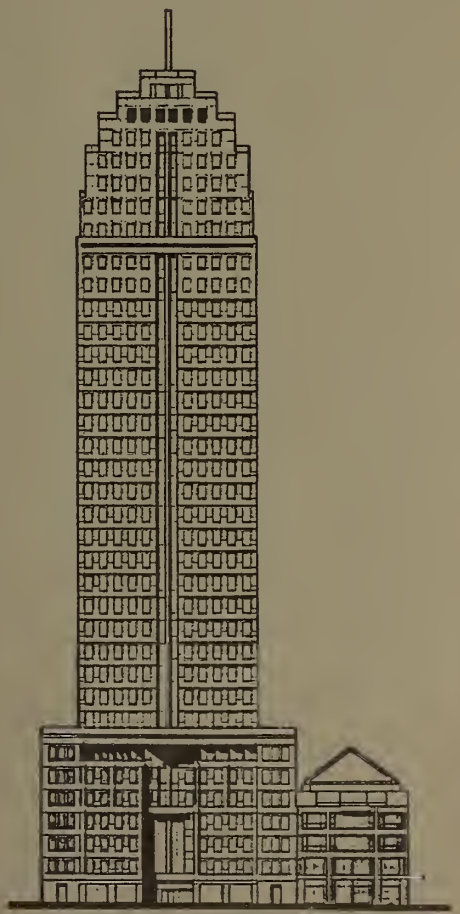
City and County of San Francisco
Department of City Planning

Draft Environmental Impact Report

101 Second Street Office Project
85.414E



Publication Date: October 24, 1986
Public Hearing Date: December 4, 1986
Public Comment Period: October 24 - December 8, 1986

mments should be sent to the Environmental Review Officer: 450 McAllister Street, Sixth Floor, San Francisco, California 94102

DEPARTMENT OF CITY PLANNING 450 McALLISTER STREET • SAN FRANCISCO, CALIFORNIA 94102

DRAFT
ENVIRONMENTAL IMPACT REPORT

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101 Second Street office
project : draft
1986.

DEPARTMENT OF CITY PLANNING 450 McALLISTER STREET · SAN FRANCISCO, CALIFORNIA 94102

October 24, 1986

TO: Distribution List for the 101 Second Street EIR

FROM: Barbara Sahm, Environmental Review Officer

SUBJECT: Request for the Final Environmental Impact Report for 101 Second Street

This is the draft of the Environmental Impact Report (EIR) for 101 Second Street. A public hearing will be held on the adequacy and accuracy of this document on December 4, 1986. After the public hearing, our office will prepare and publish a document titled "Summary of Comments and Responses," which will contain a summary of all relevant comments on this Draft EIR and our responses to those comments. It may also specify changes to this Draft EIR. Those who testify at the hearing on the draft will automatically receive a copy of the Comments and Responses document along with notice of the date reserved for certification (usually about 9 weeks after the hearing on the draft); others may receive such copies and notice on request or by visiting our office. This Draft EIR, together with the Summary of Comments and Responses document, will be considered by the City Planning Commission in an advertised public meeting and certified as a Final EIR if deemed adequate.

After certification, we will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final Environmental Impact Report. The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. It will simply provide the information in one rather than two documents. Therefore, if you receive a copy of the Comments and Responses document in addition to this copy of the Draft EIR, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Summary of Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them.

If you want a copy of the Final EIR, please so indicate in the space provided on the next page and mail the request to the Office of Environmental Review within two weeks after certification of the Final EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR. Copies will also be avilable at the Department of City Planning, 450 McAllister Street - 6th floor, San Francisco, California 94102.

Thank you for your interest in this project.

REQUEST FOR FINAL ENVIRONMENTAL IMPACT REPORT

To: Department of City Planning, Office of Environmental Review

Re: 101 Second Street Final EIR (85.414E)

(____) Please send me a copy of the 101 Second Street Final EIR.

Signed: _____

Print Your Name and Address Below:

_____
(Name)

_____
(House Number and Street)

_____
(City, State and Zip Code)

If you are requesting an FEIR, please tear this page out, show your address above, fold the mailer so that your return address and the Department of City Planning's address is exposed, seal, add postage and mail.)

FEIR reqst postcard

(fold here)

Return address:

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Department of City Planning
450 McAllister Street - 6th Floor
San Francisco, California 94102

ATTN: Ms. Sally Maxwell

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FEIR reqst postcard

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INTRODUCTION

This introduction explains the process of tiering environmental impact reports, and describes tiering in relation to this Draft Environmental Impact Report for the proposed Second and Mission project.

1. TIERED ENVIRONMENTAL IMPACT REPORT

Where a prior environmental impact report (EIR) has been prepared and certified for a program, plan, policy or ordinance, the lead agency for a later project that meets specified requirements must examine significant effects of the later project on the environment, with exceptions, by using a tiered report whenever feasible as determined by the lead agency. (See California Public Resources Code, California Environmental Quality Act (CEQA), Sections 21093 and 21094, including amendments effective January 1, 1986.)

The law states that Legislative intent, finding and declaring that: tiering of environmental impact reports will promote construction of needed housing and other development projects by 1) streamlining regulatory procedures, 2) avoiding repetitive discussions of the same issues in successive environmental impact reports, and 3) ensuring that environmental impact reports prepared for later projects which are consistent with a previously approved policy, plan, program, or ordinance concentrate upon environmental effects which may be mitigated or avoided in connection with the decision on each later project; [and] that tiering is appropriate when it helps a public agency to focus upon the issues ripe for decision at each level of environmental review and in order to exclude duplicative analysis of environmental effects examined in previous EIRs.

The law directs that where a prior EIR has been prepared and certified as noted above, the lead agency shall examine significant effects of the later project on the environment

by using a tiered EIR, except that the report on the later project need not examine those effects which were either mitigated or avoided as a result of the prior EIR, or, examined at a sufficient level of detail as a result of the prior EIR to enable those effects to be mitigated or avoided by site-specific revisions, the impositions of conditions, or other means in connection with the approval of the later project.

2. 101 SECOND STREET

A tiered environmental impact report has been prepared, and is presented herein, for the proposed 101 Second Street project pursuant to Sections 21093 and 21094 of CEQA. This EIR is tiered from the EIR for the Downtown Plan (EE81.3, Final EIR certified October 18, 1984). The cumulative impacts of the development forecast in the downtown C-3 Districts of San Francisco to the year 2000, including this project, are addressed in the Downtown Plan EIR. That cumulative analysis is not repeated in the EIR for this project.

The EIR for 101 Second Street identifies the project portion of the cumulative impacts forecast in the prior EIR. (The Downtown Plan EIR may be examined at the Department of City Planning, 450 McAllister Street, Sixth Floor, San Francisco; the San Francisco main library; and various branch libraries.)

The 101 Second Street EIR analyzes project-specific impacts. It discusses potentially significant effects of the project that were not examined in the Downtown Plan EIR and includes applicable mitigation measures for site-specific effects.

I. SUMMARY

A. PROJECT DESCRIPTION (see pages 12 to 23)

Markborough California Properties proposes to construct an office building with ground floor retail and upper level open space at the intersection of Mission and Second Streets in the South of Market area of San Francisco. The project site contains 27,560 square feet and consists of Assessor's Block 3721, Lots 72, 73, 74 and 75. The project site currently contains four buildings with office, retail and warehouse functions, together consisting of 91,563 gross square feet (gsf) of office space and 20,650 of retail space. Of the total, 8,100 gsf of the office space and 3,200 gsf of retail space is currently unoccupied. There are no parking spaces currently on-site. The building on Lot 72 is in the New Montgomery-Second Street Conservation District but is not rated as a significant or contributory building. All existing structures would be demolished to construct the proposed project.

The proposed project would be an office and retail development containing a total of 463,253 gsf of floor area as defined by the City Planning Code, including 454,918 gsf of office space (an increase of 363,355 gsf) and 7,350 gsf of retail and food serving space on the ground and mezzanine levels (a decrease of 13,300 gsf). The project would include 91 on-site off-street parking spaces on two subterranean levels. The proposed project would have a Floor Area Ratio of 16.8:1.

The proposed project would rise 32 stories above Mission Street to a maximum height of 457 feet. There would be 31 occupiable floors in the building rising to 434 feet. Above 434 feet would be a 23-foot mechanical penthouse and a 43-foot rooftop flag pole. The portion of the building in the New Montgomery-Second Street Conservation District would rise to 47 feet.

The project would have four full sized off-street freight loading spaces and two van delivery spaces. Pedestrian access would be from Mission and Second Streets.

The project would incorporate about 215,213 gsf of transferred development rights (TDR) from one (or more) sites in the C-3 Districts. The FAR over preservation and development lots would be 7.8:1. The project would require an exception from Section 148 of the Code requiring projects to be designed such that wind in the immediate vicinity does not exceed the comfort criterion for pedestrian or seating areas. The project would also request an exception from Section 132.1 requiring projects to have a minimum 15-foot setback from all interior property lines.

The project sponsor would request Project Authorization from the City Planning Commission pursuant to Sections 320 - 324 of the City Planning Code, whereby the project would be evaluated and compared to other proposed projects.

B. ENVIRONMENTAL EFFECTS

1. LAND USE AND ZONING

The proposed project would result in an intensification of uses on the project site, with a net increase of 363,355 gsf of office space, 7,890 gsf of open space and 91 parking spaces. The project would result in a net decrease of about 13,300 gsf of retail space on the project site. The project site is in a C-3-O (Downtown Office) District. The project's FAR of 17.0:1 is within the allowable FAR of 18:1 on the project site, but would require that the project sponsor acquire the equivalent of 221,618 gsf of floor area, or an additional FAR of 8.0:1 for the project site. The project tower would reach a height of 457 feet, below the maximum 500-foot height permitted in the 500-S Height and Bulk District. The corner portion of the project would rise 47 feet, below the maximum 150-foot height permitted in the 150-S Height and Bulk District. The project building would conform to the allowable dimensions of the district, but would require exception from the required 15-foot setback along the southwest interior property line.

In conjunction with recently approved and proposed projects, the proposed project would contribute to an intensification of development in the project area.

2. URBAN DESIGN

At 457 feet, the proposed project would be similar in height to other recent projects to the north and east of the project site but would be about five to ten times as high as the prevailing scale of older development in the South of Market area to the south of the project site. In conjunction with other projects under construction and proposed, the proposed project would increase the scale and intensity of development in the area.

3. ARCHITECTURAL, HISTORIC AND CULTURAL RESOURCES

The proposed project would result in the demolition of buildings not rated in the Downtown Plan. The project would demolish an unrated building in the New Montgomery-Second Street Conservation District and construct a new three-story structure with rooftop open space.

Archival research conducted on the project site identified documented occupation of the project site in the early part of the Gold Rush. The possibility of an assemblage of cultural materials from the early Gold Rush period within the confines of the project site would represent a find of demonstrable significance. A mitigation measure has been included describing preconstruction testing that would be conducted as well as monitoring during the construction period.

4. SHADOWS AND WIND

The proposed project would cast new shadows on streets and sidewalks in the project area throughout the year. No new shadows would be cast on properties owned by the Department of Recreation and Parks and regulated by Proposition K.

The project site is located in an area of high wind conditions. Under existing conditions at 10 of the 18 measurement locations around the project site, the 11-mph comfort criterion for pedestrian areas is violated. With the proposed project, at 11 of the 18 measurement locations around the project site, the 11-mph comfort criterion would be violated and at two of five measurement locations in the project open space, the 7-mph comfort criterion for proposed seating areas would be violated. The project sponsor would request exception from Section 148 of the Code, pursuant to the requirements of Section 309.

5. TRANSPORTATION

The proposed project would generate about 4,582 net new daily weekday person trips. P.m. peak-hour (4:30 to 5:30) person trips would increase by about 540.

Volume-to-capacity ratios at major intersections in the project area would decline in level of service with cumulative development by the year 2000. The project would generate about 212 additional p.m. peak-hour vehicle trips, representing less than one percent of cumulative downtown vehicle trips.

Peak-hour ridership on Muni would increase by about 134 person trips. The project would generate a parking demand for 189 spaces and would provide 91 on-site spaces, resulting in a net deficit of 98 spaces. The City Planning Code does not require parking spaces included in projects in the C-3 District. The proposed project would increase pedestrian flows on sidewalks adjacent to the project site causing a decline in level of service from open to unimpeded conditions on the Minna Street crosswalk.

6. AIR QUALITY

Currently there are violations of the eight-hour state and federal standard for carbon monoxide (CO) concentration at two of the four intersections analyzed. By 2000, there would not be violations at any of the four intersections.

7. CONSTRUCTION NOISE

The four-phase construction of the project (demolition, excavation and shoring, foundations and garages, and building construction) would take place over a 24-month period. The highest noise levels would be generated by jackhammers during the demolition phase (about 88 dBA at 50 feet) and by pile driving (about 105 dBA at 50 feet) and impact wrenches (about 95 dBA at 50 feet) during building construction. There could also be some impacts due to vibration during the demolition phase. It is anticipated that noise levels generated during construction could result in a disturbance to workers and residents in nearby buildings. Mitigation measures have been incorporated into the project to minimize noise impacts on surrounding uses during project construction.

8. EMPLOYMENT AND HOUSING

On-site employment would increase by about 1,611 employees. Indirect employment in other parts of the Bay Area would be expected to increase by about 3,605 employees through the multiplier effect. Project construction would require about 545 person years, an average of about 273 construction jobs during the construction period.

Growth on C-3 district employment would result in more households with more income to pay for housing, adding to already strong demand for housing in San Francisco. While there would be an increase in San Francisco's housing supply, the private market is expected to be unable to supply much new housing that would be affordable to a large segment of the City's population.

9. GROWTH INDUCING IMPACTS

The proposed project would result in 363,355 gsf of net new office space and a net decrease of about 13,300 gsf of retail space, and about 5,216 new jobs on the project site and throughout the Bay Area. Redevelopment of the project site to a higher intensity use, along with intensification of development on other sites in the project area, could encourage redevelopment of other sites for higher intensity development in the South of Market area, including more intensive retail and office development.

C. MITIGATION MEASURES

Some of the mitigation measures included in the proposed project are listed below; the complete list of mitigation measures, both those included in the project and those not included, is found in Section V, pages 125 to 135.

TRANSPORTATION

On-site transportation brokerage services would be provided for the life of the project to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system; encouraging transit use through on-site sale of transit passes; and encouraging employee carpool and vanpool systems. The transportation management program and responsibilities of the provider of transportation brokerage services will be detailed in a Memorandum of Agreement between the project sponsor and the Department, which will be executed prior to issuance of an occupancy certificate.

HOUSING

The project sponsor would meet its housing requirement under the OAHPP of 140 units, 62% of which "must be affordable to households of low or moderate income for 20 years."

D. ALTERNATIVES

ALTERNATIVE ONE: NO PROJECT ALTERNATIVE

This alternative would entail no change to the existing site or uses on the site. The environmental characteristics associated with this alternative would be the same as those described in the Environmental Setting section of this EIR. The project sponsor has rejected this alternative since it would not provide high quality office space, build a boldly designed building, provide a large, usable open space or realize a reasonable return on investment.

ALTERNATIVE TWO: NO TRANSFER OF DEVELOPMENT RIGHTS

There are two variants of this alternative which would directly comply with the City Planning Code.

Variant One would consist of an alternative directly complying with the Code and including on-site parking but not including the use of TDRs. This variant would be approximately one-half of the size of the proposed project due to the maximum FAR from 16.8:1 to 9.0:1, and would include 243,820 gsf of office space and 4,300 gsf of retail space. The building would rise 16 stories to a height of 291 feet.

Impacts associated with intensification of land uses and urban design impacts would be smaller than with the proposed project due to the decreases floor area and height of this alternative. Impacts on architectural and historic resources would be the same as in the proposed project. Transportation and air quality impacts would be about 93% less than with the proposed project. Occupancy in parking lots and garages in the project area would remain at the existing 87%, compared to an increase from 87% to 89% with the proposed project. Wind impacts would be essentially the same as with the proposed project.

Variant Two would consist of an alternative directly complying with the Code and not including on-site parking or the use of TDRs. This variant would be essentially the same as Variant One, but would not include basement level parking. The FAR would be 9.0:1, compared to 17.0:1 with the proposed project.

The impacts associated with Variant Two would be the same as with Variant One except for impacts on parking occupancy and potential impacts on archaeological/cultural resources. Elimination of on-site basement parking would result in the area parking occupancy increasing from 87% to 88%, compared to an increase from 87% to 89% with the proposed project. This variant would not have potential impacts on archaeological resources since there would be no excavation of the project site.

ALTERNATIVE THREE: NO PARKING

This alternative would be similar to the proposed project but would not include basement parking. The FAR for this alternative would be 16.8:1, the same as for the proposed project. The commercial floor area in this alternative would be unchanged from the proposed project.

Impacts associated with an intensification of land uses, urban design, shadows and wind, architectural resources, non-traffic transportation, air quality, employment, construction noise and growth inducing impacts of this alternative would be the same as for the proposed project. Elimination of the on-site parking would result in an increase in area parking occupancy compared to the proposed project. There would be no potential impacts on cultural resources since there would be no additional excavation of the project site.

ALTERNATIVE FOUR: NO DEMOLITION IN THE CONSERVATION DISTRICT

This alternative would be a project similar to the proposed project but not resulting in the demolition of the 595 Mission Street building, located in the New Montgomery-Second Street Conservation District. In total, this alternative would contain 462,003 gsf of commercial space, including 456,753 gsf of office space and 5,250 gsf of retail space.

This alternative would have similar impacts on intensification of land uses, urban design shadows and wind, since the building would be of similar size, height and bulk as the proposed project. Transportation and air quality impacts associated with this alternative would be 1.6% less than for the proposed project. Occupancy in parking lots and garages in the project area would increase from 87% to 89%, the same as with the proposed project.

ALTERNATIVE FIVE: PROJECT WITH MAXIMUM TDRs

This alternative would be similar to the proposed project, but larger due to increased height at the corner of Second and Mission Streets. The corner portion of the building, three stories in the proposed project, would be six stories in this alternative.

Total constructed area of the alternative would be about four percent greater than with the proposed project. The FAR of the alternative would be 17.8:1, compared to 16.8:1 with the proposed project.

Commercial area in this alternative would be 4.8% greater than the proposed project, resulting in a proportional increase in impacts associated with intensification of land uses. Transportation impacts associated with an increase in travel demand would be 8.8% more than in the proposed project, proportional to the increase in overall travel demand associated with the alternative. As with the proposed project, this alternative would result in exceedences of the comfort criterion for both pedestrian and seating areas. This alternative would result in an exceedance of the 26 mile per hour hazard criterion on sidewalks on Minna Street. There would be no exceedence of the hazard criterion with the proposed project.

II. PROJECT DESCRIPTION

A. OBJECTIVES OF THE PROJECT SPONSOR

The project sponsor, Markborough California Properties, proposes to construct an office building with ground floor retail and open space. In proposing this development the project sponsor has the following objectives: to provide high quality office and retail space in a building at one of the City's prime locations for access and image; to provide an office building attractive to major space users by providing 454,918 gross square feet of office space with maximum sized floor plates (given the bulk limitations) to serve both front-and back-office type users; to build a boldly designed building which is both compatible with the historic nature of Second Street and is an attractive and distinctive addition to the City's skyline; to provide a large, usable open space area, compatible with the prevailing design of the New Montgomery-Second Street Conservation District, in a section of the City lacking in open areas; and to realize a reasonable return on investment.

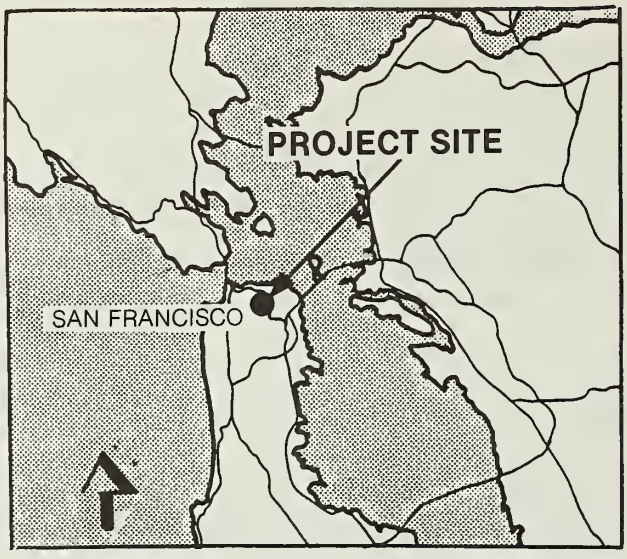
The project architects are Skidmore, Owings and Merrill.

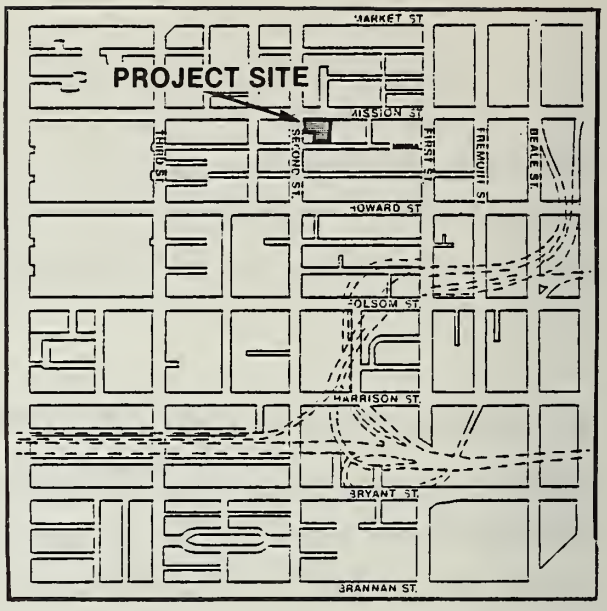
B. PROJECT LOCATION

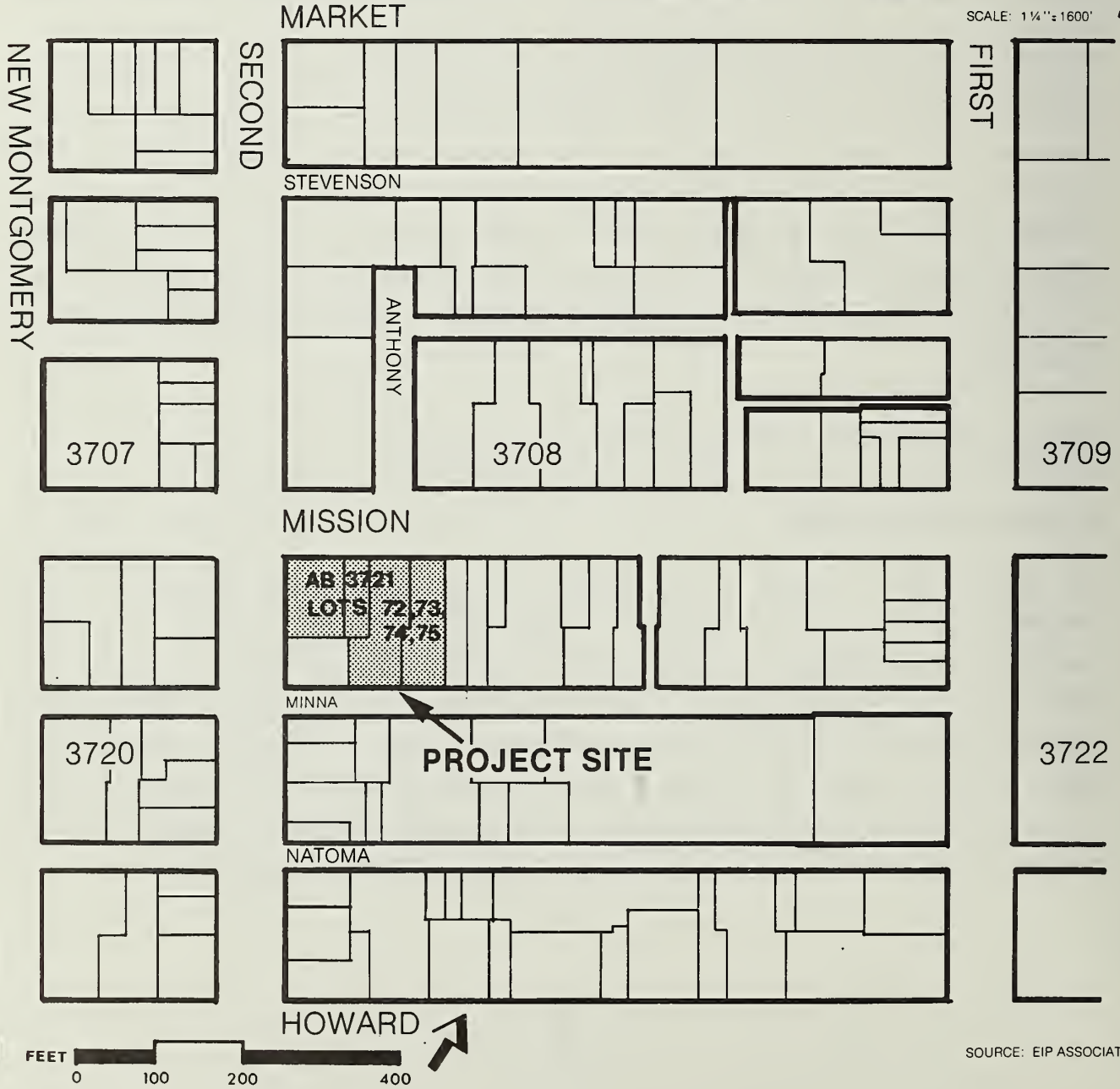
The project site is located in the South of Market area of San Francisco, at the southeast corner of the intersection of Second Street and Mission Street, one block southwest of the Transbay Terminal, one block south of Market Street and three blocks north of the U.S. 101/I-80 freeway. (see Figure 1, page 12). The project site would be Assessor's Block 3721, Lots 72, 73, 74, and 75 and would have a total site area of 27,560 square feet. The project site is in the C-3-O (Downtown Office) District in which the basic allowable Floor Area Ratio (FAR) is 9.0:1. It is in the 500-S and 150-S Height and Bulk Districts in which the maximum heights are 500-feet and 150-feet, respectively.

SITE LOCATION MAP

FIGURE 1







SOURCE: EIP ASSOCIATES

C. PROJECT DESCRIPTION

The proposed project would be an office and retail development containing a total of 463,253 gross square feet (gsf) of floor area as defined by the City Planning Code, including 454,918 gsf of office space and 7,350 gsf of retail and food service space. Retail and food service space would be on the ground level. The project would include about 7,890 gsf of open space in a fourth floor plaza fronting on Second and Mission Streets, with direct access from street level via an elevator in the corner entranceway and direct access from the fourth-floor of the office building via the building elevator. The project would also include 91 parking spaces on two floors, below-grade, consisting of 32,877 gsf of area. The proposed project would include four full-sized off-street loading spaces and two van-sized off-street loading spaces accessed from Minna Street (see Figures 2 to 4, pages 16 to 20). The Floor Area Ratio (FAR) for the proposed project would be 16.8:1; up to 18.0:1 FAR may be permitted on-site with Transfer of Development Rights (TDRs). Table 1, page 14, describes the characteristics of the proposed project. Table 2, page 15, describes the FAR calculations for the proposed project.

The project site currently contains four buildings with office, retail and warehouse functions. In total, the buildings on the project site contain a total of about 91,563 gsf of office space and 20,650 gsf of retail space. Of the total, 8,100 gsf of office space and 3,200 gsf of retail space is currently unoccupied. There are no parking spaces currently on-site. The building on Lot 72 is in the New Montgomery-Second Street Conservation District but is not rated as a significant or contributory building. None of the other buildings on the project site has been rated by any available source. All existing structures would be demolished to construct the proposed project.

The proposed project would rise 32 stories (including one mechanical floor) above Mission Street, to a maximum height of about 457 feet. There would be 31 occupiable floors in the building, which would rise about 434 feet. Above 434 feet would be a 23-foot mechanical penthouse and a 43-foot rooftop flag pole. The top of the flag pole would be 500 feet above Mission Street.

The building base would rise 101.5 feet. Above the building base the building would setback seven feet from Mission Street and seven feet from Minna Street. The upper

TABLE 1

PROJECT CHARACTERISTICS

Project Area By Use	Gross Constructed Area	Gross Floor Area (for FAR)
Office	454,918	454,918
Retail	7,350	2,350
Parking	32,877	
Open Space	7,890	
Loading	4,752	
Mechanical/Lobby	30,750	5,985
Total	538,537	463,253
Project Floor Area Ratio		16.8:1

Height and Bulk	Planning Code Maximum	Proposed Project
Height		
Top of Building	575'	457'
Top of Highest Occupied Floor	500'	434"
Top of Lower Tower	290'	285.5'
Top of Base	106.25'	101.5'
Bulk		
Base	No Requirements	
Lower Tower		
Maximum Length	160 ft	156 ft
Maximum Diagonal	190 ft	176 ft
Upper Tower		
Maximum Length	130 ft	126 ft
Maximum Diagonal	160 ft	151 ft
Floor Size		
Lower Tower		
Average	17,000	13,468
Maximum	20,000	14,308
Upper Tower		
Average	12,000	11,153
Maximum	17,000	12,340
Required Upper Tower Volume Reduction	13.5%	20.0%

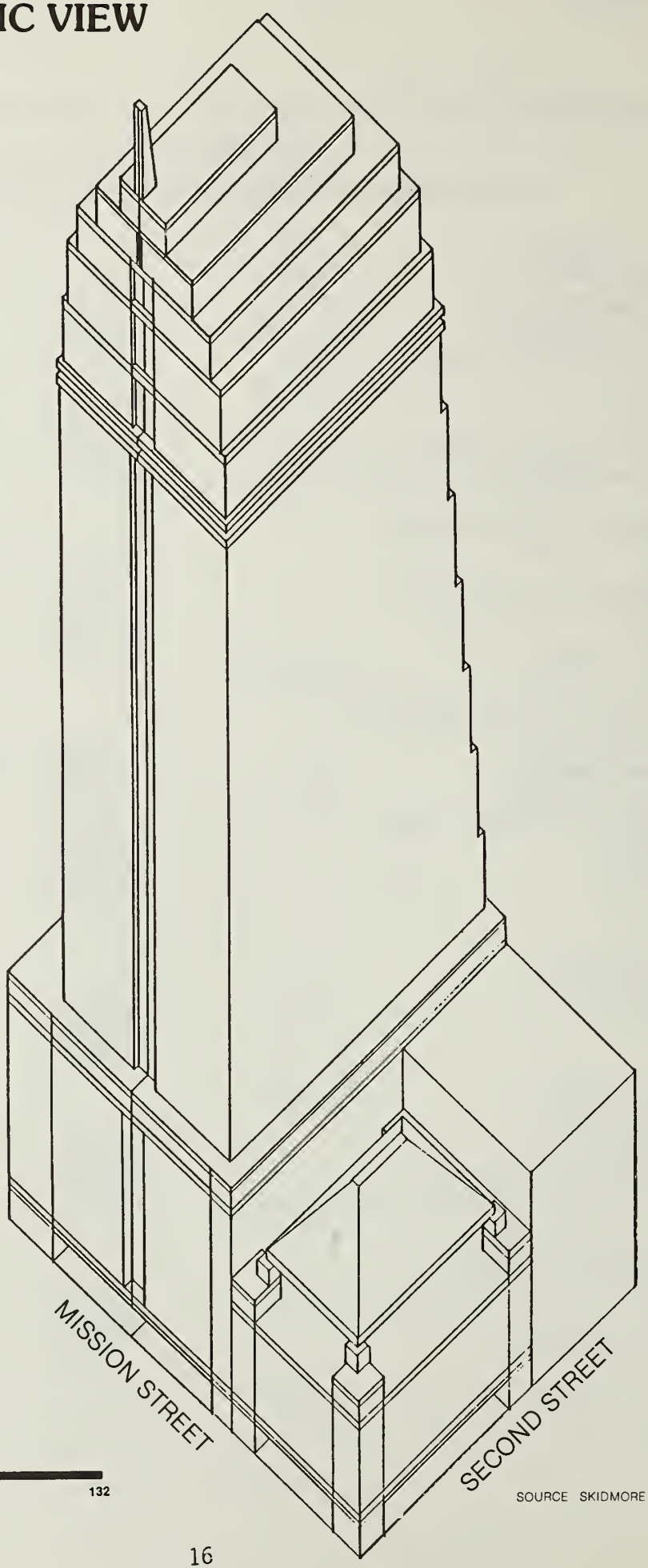
TABLE 2

FLOOR AREA RATIO AND TDR CALCULATIONS

1.	Allowable Floor Area	
	Site Size	27,560
	Base Maximum FAR	9.0:1
	Base Maximum Floor Area	248,040
	Site Size	27,560
	Maximum FAR with TDRs	18.0:1
	Maximum Floor Area with TDR	496,080
2.	Floor Area Applicable to FAR	
	Office	454,918
	Retail (Above Ground Floor)	2,350
	Ground Level Core/Exits	5,985
	Total	463,253
3.	Floor Area Not Applicable to FAR	
	Ground Floor Retail	5,000
	Accessory Parking	32,877
	Off-Street Loading	4,752
	Public Circulation/Auto Ramp	9,023
	Mechanical	15,742
	Open Space	7,890
	Total	75,284
4.	Project FAR	
	Floor Area	463,253
	Site Size	÷27,560
	FAR	16.8:1
5.	Required TDRs	
	Gross Floor Area	463,253
	Base Maximum Floor Area	248,040
	Required Transferred Floor Area	215,213
6.	FAR Requiring Transfer	
	Required Transferred Floor Area	215,213
	Site Size	÷27,560
	FAR Requiring TDR	7.8:1

SECOND AND MISSION PROJECT
AXONOMETRIC VIEW

FIGURE 2



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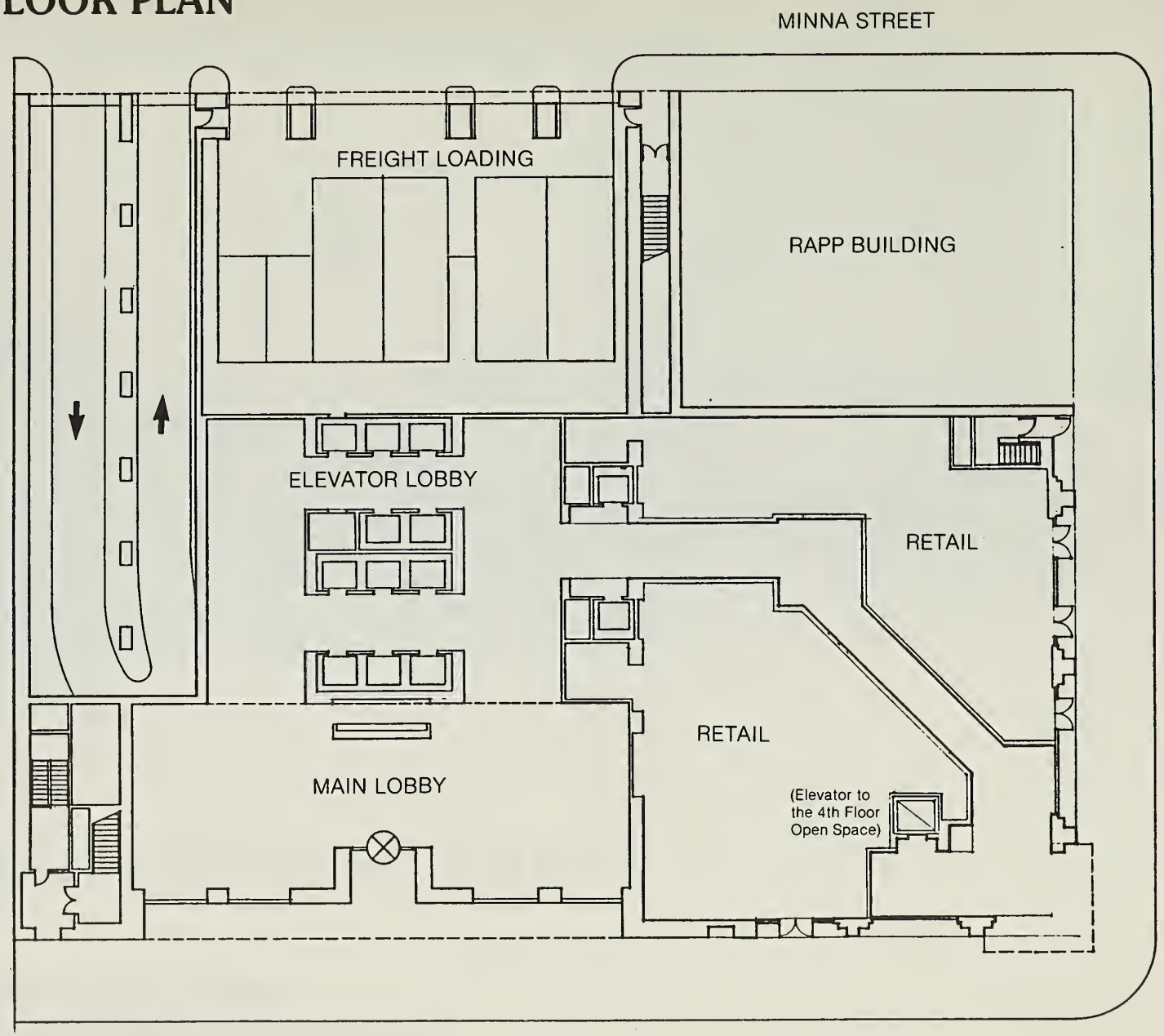
SOURCE SKIDMORE OWINGS AND MERRILL

SECOND AND MISSION PROJECT
GROUND FLOOR PLAN

FIGURE 3



SOURCE: SKIDMORE, OWINGS AND MERRILL

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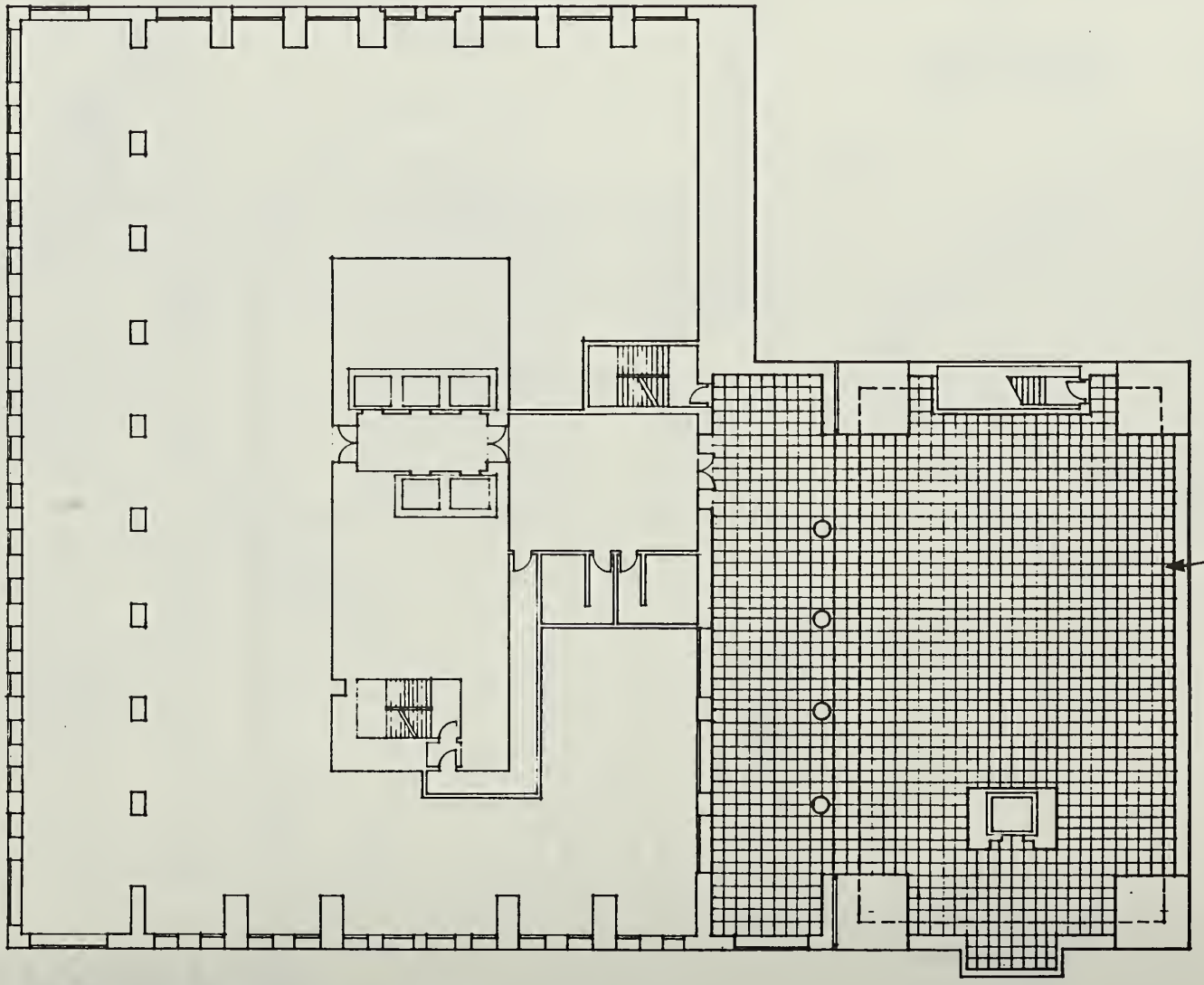
SECOND AND MISSION PROJECT
OPEN SPACE LEVEL PLAN

FIGURE 4



SOURCE: SKIDMORE, OWINGS AND MERRILL

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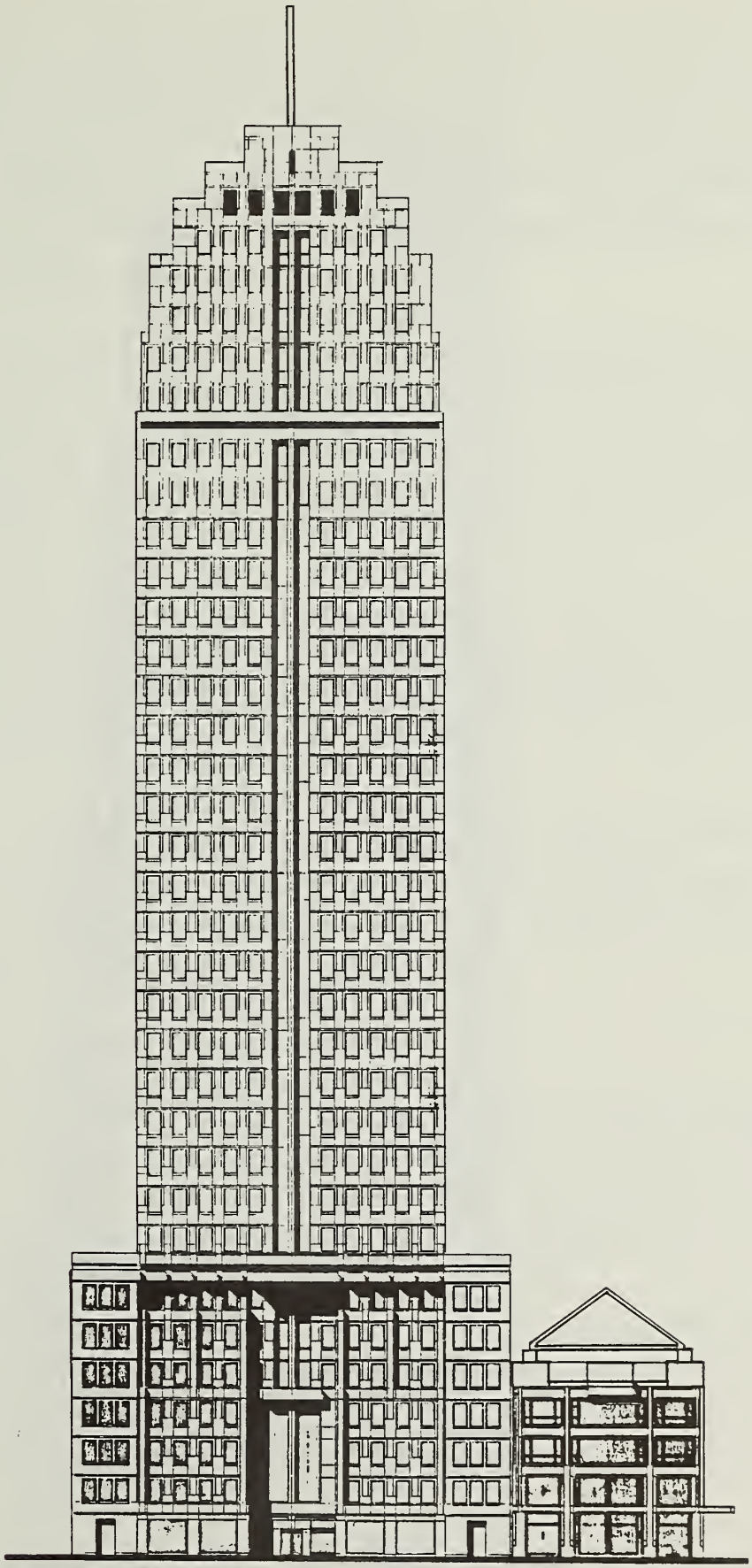
SECOND AND MISSION PROJECT
MISSION STREET ELEVATION

FIGURE 5



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SOURCE: SKIDMORE, OWINGS AND MERRILL

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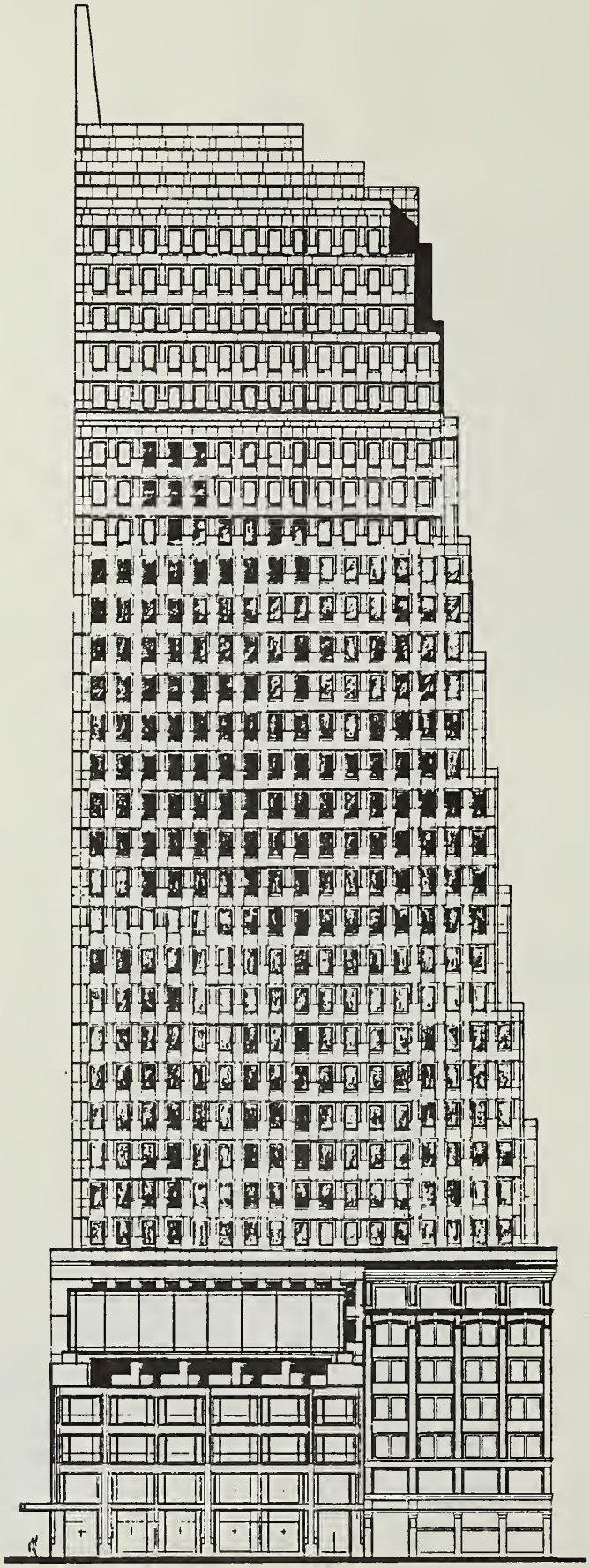
SECOND AND MISSION PROJECT
SECOND STREET ELEVATION

FIGURE 6



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SOURCE: SKIDMORE, OWINGS AND MERRILL

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portion of the building is characterized by a series of five-foot setbacks from Minna Street. Above the base (sixth story) the building sets back 20 feet from the northeast property line and 13 feet from the southwest property line. The project would require exception to the required 15-foot separation of towers setback from the portion of the southwest property line which is adjacent to the Rapp Building, pursuant to Section 132.1(c)2 of the City Planning Code.

The 7,890 gsf public outdoor open space at the corner of Second and Mission Streets would be built over three floors of retail and office space and would be covered by a glass roof. The open space would be accessible from Second and Mission Streets by way of a designated elevator from the corner at street level and from the proposed office building via the building elevator.

The proposed building would be of reinforced concrete and steel construction. Construction of the basement parking levels would require excavation of the entire project site to a depth of about 21 feet. Facade materials would be light stone and lightly-tinted, non-reflective glass would be used.

Pedestrian access to the proposed project would be from Mission Street and the Mission/Second Street corner. Automobiles would enter and exit the parking area located under the proposed project from Minna Street. Similarly, trucks using the off-street loading spaces would access them from Minna Street.

D. PROJECT APPROVALS

Following a public hearing on this EIR before the City Planning Commission, responses to all written and oral comments will be prepared; this EIR will be revised accordingly and presented to the City Planning Commission for certification as to accuracy, objectivity and completeness. No permits may be issued before the Final EIR is certified.

Under Section 309 of the City Planning Code the sponsor would request exception from (1) requirements of Section 148, to allow exceedences of the 11 mile per hour comfort criterion for pedestrian areas and the seven mile per hour comfort criterion for seating areas and (2) requirements of Section 132.1(c)2, to allow a separation of towers setback

that would be two feet less than the required 15-foot setback. Under Section 309 the City Planning Commission would also evaluate artwork (Section 149) and open space (Section 138). The project sponsor would request Project Authorization from the City Planning Commission pursuant to Sections 320-324 of the City Planning Code, whereby the project would be evaluated and compared to other proposed projects.

If the project were to be approved by the City Planning Commission, the project sponsor would then need to obtain demolition, building and other related permits from the Central Permit Bureau of the Department of Public Works.

The project would be subject to Ordinance 253-86 requiring that soil testing be conducted in accordance with specified procedures.

E. PROJECT SCHEDULE AND COSTS

The project sponsor anticipates completion of the final project design by late 1986. Construction would commence once permits were issued. The project would take approximately 18 months to complete.

Occupancy would be expected to commence by mid-1988, with final project occupancy completed sometime after late-1988. The project sponsor estimates construction costs of $36,100,000.

III. ENVIRONMENTAL SETTING

A. LAND USE AND ZONING

1. LAND USE

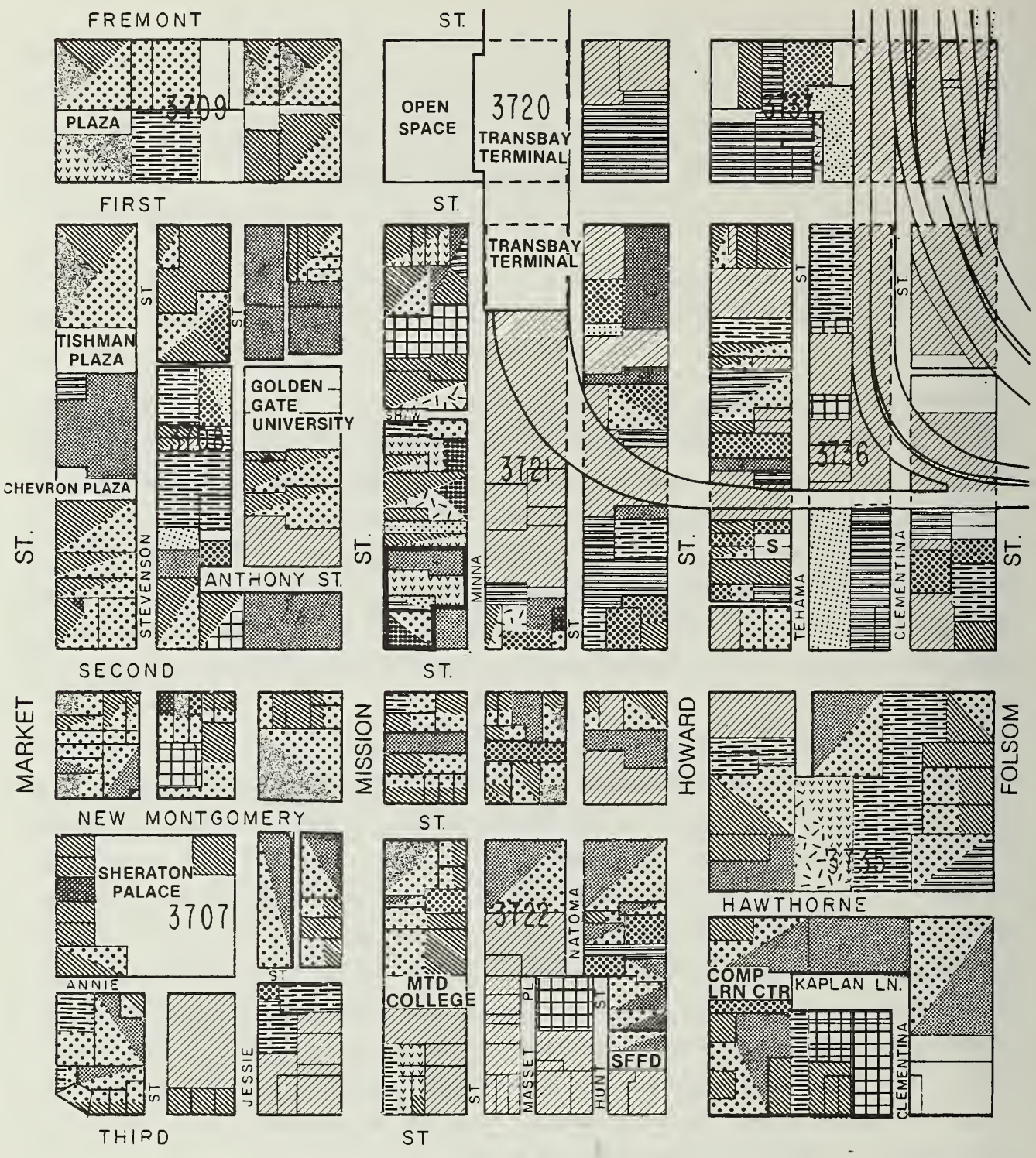
The project site is located on the southeastern corner of the intersection of Second and Mission Streets and backs against Minna Street, forming an "L" shape around the Rapp Building rated ("Category I" under the Downtown Plan) which is at the corner of Second and Minna Streets. The project site is located in the South of Market area, one block south of Market Street. The financial district is to the north across Market Street; Union Square is about four blocks to the northwest and Rincon Hill is about three blocks to the southeast. The Transbay Terminal is one block to the northeast, along Mission Street. Yerba Buena Center and Moscone Center are about two blocks to the south (see Figure 7, page 24).

The project site is occupied by four, low-rise commercial buildings ranging in height from two to four stories. The three-story 595 Mission Street building is located at the corner of Second and Mission Streets. The remainder of the site is occupied by the three-story 589 Mission building, the three-story 583-5 Mission Building and the five-story 575 Mission Building. All of the buildings, with the exception of 595 Mission, front on both Mission and Minna Streets. All structures on the site are built to the lot lines as is characteristic of older development in the project area. Uses on the site include about 91,600 gsf of office space, 20,650 gsf of retail space and about 17,450 gsf of tenant storage. About 19,500 gsf of space on the project site are currently vacant. There are no off-street parking or loading spaces currently on-site. All of the buildings on the site have basements, excavated to an average depth of 13 feet.

Similar office, retail and service uses occupy other older buildings in the vicinity. Uses across Mission Street from the site include Pacific Gas and Electric building, Golden

EXISTING LAND USES IN THE PROJECT VICINITY

FIGURE 7



SOURCE: EIP ASSOCIATES

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Gate University, general retail and offices. Golden Gate University, at 536 Mission Street, is located across Mission Street just northeast of the project site. Uses across Second Street from the site include ground floor retail and upper level offices, and uses across Minna Street from the site include office and parking.

Retail uses dominate the ground floors of buildings in the project area. The retail uses are generally supportive in nature, rather than the specialty retail uses which dominate around Union Square, complementing the major office and institutional (Golden Gate University) uses in the vicinity and serving the larger number of pedestrians enroute to the Transbay Terminal. As such, the primary retail types include pedestrian-oriented sales/service (i.e., computer hardware and software, business furniture, office supplies).

The South of Market area has become increasingly desirable as a location for office development. The Downtown Plan generally encourages new office development south of Market Street. Many low-rise structures are present in this area on sites which have been zoned for high-rise development. During the 1970s some buildings in the vicinity were converted to office use and others were replaced by high-rise towers including the Pacific Gas and Electric building (77 Beale Street), the Bechtel building (50 Beale Street) and the Metropolitan Life Insurance building (425 Market). The Milton Pflueger-designed Pacific Telephone Building is located on New Montgomery Street, between Mission and Howard Streets.

Located in the vicinity of the project site are the sites of six office buildings (including conversions), under construction or approved. In addition, another six office developments which are proposed and are under formal review by the Department of City Planning, including 535 Mission Street, 524 Howard Street, One Second Street, 201 Second Street, 35 Hawthorne and 299 Second Street. The closest project currently under construction is the 100 First Street project at First and Mission Streets. The closest approved project which has not yet begun construction is the 49 Stevenson Street project at Stevenson and Ecker Streets and the closest project under formal review is the project at 535 Mission Street.

2. DOWNTOWN SAN FRANCISCO AND THE BAY AREA REGION

In 1984, it was estimated that the C-3 District contained about 103.5 million gsf of building space over all land uses. About 60% of this space was office space. The next

largest share was hotel space at ten percent of the total, followed by retail at eight percent.[1]

The Department of City Planning has compiled data on office building construction since 1960. According to the City's data, in 1983, there were 64.3 million gsf of space in major office buildings throughout the City. Most of this office space is in the C-3 District. Between 1960 and 1979, office space was built at an average rate of 1.4 million gsf per year. Recently, office construction activity has risen to higher levels. The data compiled by the Department of City Planning show 12.2 million gsf built from 1980 through 1983, for an average rate of about 3.0 million gsf per year.

Downtown San Francisco is likely to continue to be the office center in the Bay Area region. Forecasts of development between 1984 and 2000 prepared for the Downtown Plan EIR estimate that an additional 21.7 million gsf of space in all uses would be built and occupied in the C-3 District. Most of this additional space (16.8 million gsf, almost 80 percent of the total) would be office space. According to the Downtown Plan EIR forecasts, the rate of new office construction in the C-3 District would average about 1.1 million gsf per year between 1984 and 2000.[2]

In terms of land use, the most important factor in the regional consideration of cumulative development in downtown San Francisco is region-wide office development. Other land uses throughout the region, such as retail and hotel, are less affected by development in San Francisco. The office space market is more regional in nature.

Space in office buildings in the other eight counties of the nine-county Bay Area is estimated to be 27 million square feet as of the end of 1979.[3] While San Francisco has the majority of existing office space in the region, the rapid growth of office functions in other Bay Area counties has resulted in less than half of the new space in office buildings in the region being built in San Francisco. Forty-five percent of the dollar value of building permits issued for office construction in the region between 1972 and 1979 was for San Francisco development.[4] Because the average cost per square foot for office construction is higher in San Francisco due to the predominance of high-rise office construction, the City's recent share, in terms of square footage of regional office space construction, is less than 45%.

San Francisco's role as a headquarters city and major business center for the West Coast stimulates office growth elsewhere in the Bay Area. As San Francisco firms expand, they look to suburban office markets to accommodate new functions and/or to attract a certain segment of the labor force. Moreover, as the costs of space in San Francisco have increased, due to high levels of demand, cost-sensitive firms have chosen locations in other cities or in expanding suburban locations.

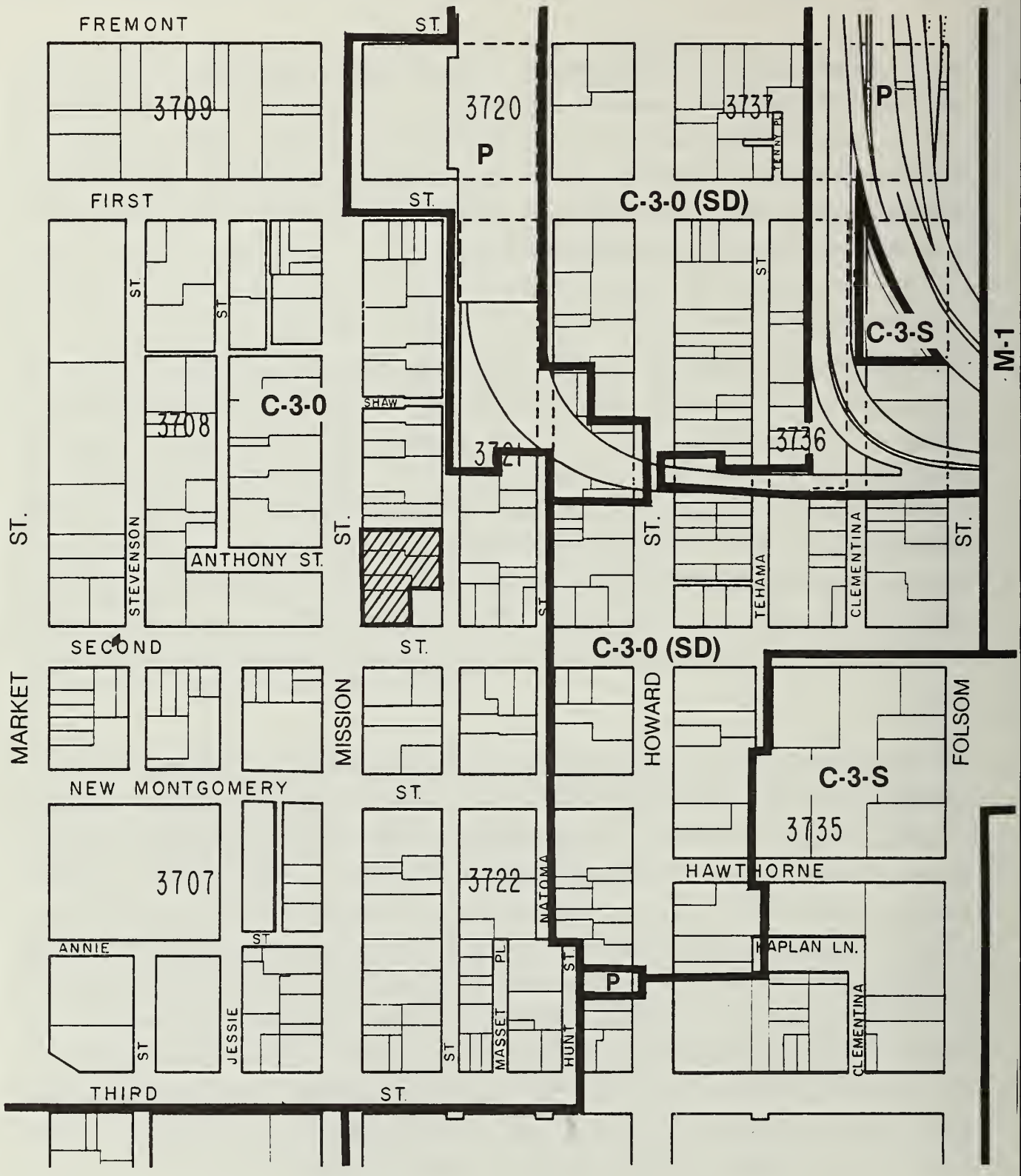
3. ZONING

The project site is located in the C-3-0 (Downtown Office) Use District in which the predominant permitted uses are office development, with support retail and services (see Figure 8, page 28). According to the City Planning Code, the intensity of building development is the greatest in the city, resulting in a notable skyline symbolizing the area's strength and vitality. The base permitted floor area ratio (FAR) allowed in the C-3-0 District is 9.0:1. Pursuant to Sections 123, 124, 125, 127 and 128 of the City Planning Code, floor area may be transferred from other sites up to a maximum FAR of 18.0:1. Sites from which floor area may be transferred must be in the same zoning district and must include architecturally significant buildings with unused potential floor area.

The project site lies in two Height and Bulk Districts (see Figure 9, page 29). Lot 72, at the corner of Mission and Second Streets is located in the 150-S District which allows for a maximum height of 150 feet. The remainder of the project site lies in the 500-S District which allows for a maximum height of 500 feet. Section 270(d) of the City Planning Code contains bulk limits for S Districts. In the S Bulk District the maximum permitted diagonal dimension is 200 feet for the lower tower portion of a building and 160 feet for the upper tower. The maximum permitted length for the lower tower is 160 feet and for the upper tower is 140 feet. The Code requires mandatory volume reduction for floors in the upper tower, in relation to the volume of the lower tower. The exact amount of the reduction depends on the specific design of the building. The maximum average floor area in the lower tower is 17,000 gsf. In the upper tower the maximum average floor area is 12,000 gsf, with a maximum floor area of 17,000 gsf.

PLANNING CODE USE DISTRICTS

FIGURE 8



DOWNTOWN SUPPORT **C-3-S**

DOWNTOWN OFFICE **C-3-0**

DOWNTOWN OFFICE SPECIAL DEVELOPMENT **C-3-0 (SD)**

LIGHT INDUSTRIAL **M-1**

PUBLIC **P**

PROJECT SITE

FEET 0 100 200 400

SOURCE: SAN FRANCISCO CITY PLANNING CODE

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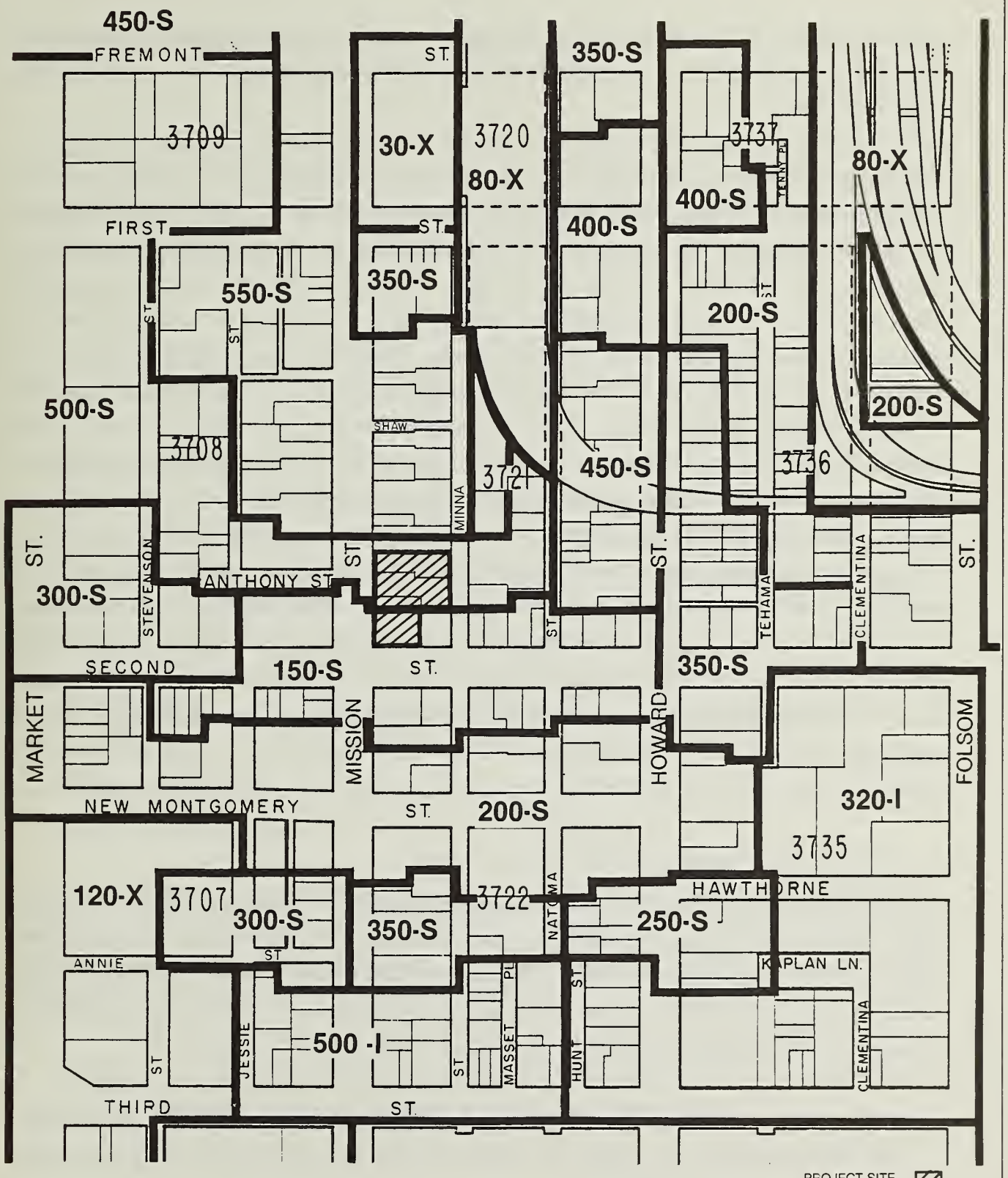
PLANNING CODE HEIGHT AND BULK DISTRICTS

FIGURE 9



The building base is that portion of the building 1.25 times the width of the largest abutting street, with a minimum height of 50 feet. For the base there are no bulk, area or plan restrictions.

Off-street parking is not required for commercial uses in the C-3-0 District, and is discouraged by the Master Plan. According to Section 204.5(c) of the City Planning Code up to seven percent of the gross floor area of a building may be devoted to parking as an accessory use when no parking is required. Section 152.5 of the Code includes requirements for off-street loading for projects in C-3 Districts. For office uses 0.1 space is required for each 10,000 gsf of floor area. For retail space, no loading spaces are required for up to 10,000 gsf, with one space required for 10,001 to 30,000 gsf. The first freight loading space must have a minimum length of 25 feet, a minimum width of 10 feet and a minimum vertical clearance of 12 feet; others must have a minimum length of 35 feet, a minimum width of 12 feet and a minimum vertical clearance of 14 feet. Projects in the C-3-0 District may substitute two vehicle spaces for each required off-street loading space provided that at least one-half of the required full-sized loading spaces are provided. Section 138 of the City Planning Code requires that usable, public open space be included in projects equal to one square foot for each 50 gsf of uses on the site. The type, size, location, physical access, seating and table requirements, landscaping, availability of commercial services, sunlight and wind conditions and hours of public access would be reviewed by the Department of City Planning pursuant to Section 309 of the Code.

4. MASTER PLAN CONSIDERATIONS

The Downtown Plan, a part of the San Francisco Master Plan, contains land use policies which apply to the proposed project. In the Downtown Plan, applicable policies include those relating to the retention and expansion of San Francisco's commercial activity, employment opportunities, relocation of displaced persons within the City, maintenance of support, retail in downtown and the provision of open space.

> Policy: "Encourage development which provides net benefits and minimizes undesirable consequences. Discourage development which has substantial consequences that cannot be mitigated." (page 5)

Policy: "Encourage prime office activities to grow as long as undesirable consequences of such growth can be controlled." (page 10)

Chapter VI, Significant Environmental Effects That Cannot Be Avoided if the Proposed Project is Implemented, page 135, summarizes the environmental impacts of the proposed project which could not be eliminated or reduced to insignificant levels by mitigation measures included as part of the proposed project or other mitigation measures that could be implemented.

Policy: "Guide location of office development to maintain a compact downtown core and minimize displacement of other uses." (page 11)

The proposed project site, at the corner of Second and Mission Streets is on the southern edge of the Financial District, San Francisco's traditional downtown core. In recent years the focus of new office development has shifted to blocks south of Market Street, primarily those to the northeast of the project site. The proposed project would be located in an area indicated in the Downtown Plan as appropriate for continuing growth of new high intensity office development south of Market Street.

Policy: "Meet the convenience needs of daytime downtown workers." (page 16)

Policy: "Provide space for support commercial activities within the downtown and in adjacent areas." (page 19)

The project would include retail and food service space which would serve workers in the project itself and workers in nearby buildings. The project would not include space sufficient for the inclusion of support commercial space serving the project or other nearby office tenants.

Objective: "Provide quality open space in sufficient quantity and variety to meet the needs of downtown workers, residents and visitors." (page 49)

The proposed project would include public open space in a fourth floor rooftop garden at the corner of Second and Mission Streets . The rooftop garden would be accessible from an elevator at the corner entrance on the ground floor, as well as from the office tower.

The Commerce and Industry Element of the Master Plan contains policies which apply to the proposed project and are not repeated in the Downtown Plan.

> Objective 3, Policy 1: "Promote the attraction, retention and expansion of commercial and industrial firms which provide employment opportunities for unskilled and semi-skilled workers."

The proposed project would result in an increase in office and retail jobs held by City residents, some of whom are unskilled or semi-skilled. During construction about 273 temporary jobs would be created on the project site.

> Objective 8, Policy 4: "Maintain a presumption against the establishment of major new commercial development except in conjunction with adequately supportive residential development and public/private transportation capacity."

The proposed project would increase commercial office space and decrease retail space in the project site. The proposed project would contribute to increased traffic congestion and diminishing levels of service on local transit lines. The project would contribute to Muni through the Transit Development Impact Fee and to the production of housing under the Office Affordable Housing Production Program (OAHPP).

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[1]San Francisco Department of City Planning, Downtown Plan Environmental Impact Report (EIR), EE81.3, Certified October 18, 1984, Volume 1, page IV.B.17. The estimates of C-3 District building space for 1984 are based on 1981/82 data for the C-3 District collected for the Downtown Plan analysis. The Downtown EIR Land Use Inventory was conducted to provide a base case from which the land use impacts of the Downtown Plan and Alternatives could be analyzed. The Inventory data on C-3 District space by use and subarea are presented in Vol. 1, Table IV.B.1, on page IV.B.2 of the Downtown Plan EIR. The estimates of land use change between 1981 and 1984 primarily reflect the projects under construction in the C-3 District as of mid-1982 and are presented in Vol. 1, on pages IV.B.14 to IV.B.16 of the Downtown Plan EIR. The text discusses the real estate market context for these short-term projections of land use

change. It indicates that the amount of office space under construction exceeded the projected demand estimated according to longer-term employment growth forecasts prepared for the Downtown Plan analysis. Therefore, some of the space assumed to be built by 1984 (and included in the 1984 totals identified herein) would be absorbed later in the 1980s. These sections of the Downtown Plan EIR are hereby incorporated by reference pursuant to State CEQA Guidelines, Section 15150. The C-3 District Land Use Inventory is available for public review at the Department of City Planning.

[2] Ibid., Vol. 1, pages IV.B. 34-35. This estimate accounts for new construction, as well as demolition and conversion of existing space.

The forecasts presented in this paragraph represent space that would be built and absorbed by 2000. Space that will be under construction and not yet occupied in 2000 is not included in the forecasts for 2000 for the Downtown Plan.

[3] Association of Bay Area Governments (ABAG), "Bay Area Office Growth," Berkeley, California, April, 1981, pages 31-62. This number may be an underestimate because the sources for the report apparently do not always include small office buildings.

[4] Ibid., page 18.

B. URBAN DESIGN AND VISUAL QUALITY

The existing buildings on the project site are low-rise, ranging in height from 40 to 65 feet, typical of older South of Market development. The 595 Mission building houses Dorman's Office Furniture, at the corner of Second and Mission Streets. The building fronts on both Second and Mission Streets and is immediately adjacent to the Rapp Building rated Category I in the Downtown Plan. It has a red-brick facade with little ornamentation and has been rated Category V in the Downtown Plan, the lowest possible rating and does not constitute either a significant or contributory building. All three buildings front on both Mission and Minna Streets (see Figure 10, page 35).

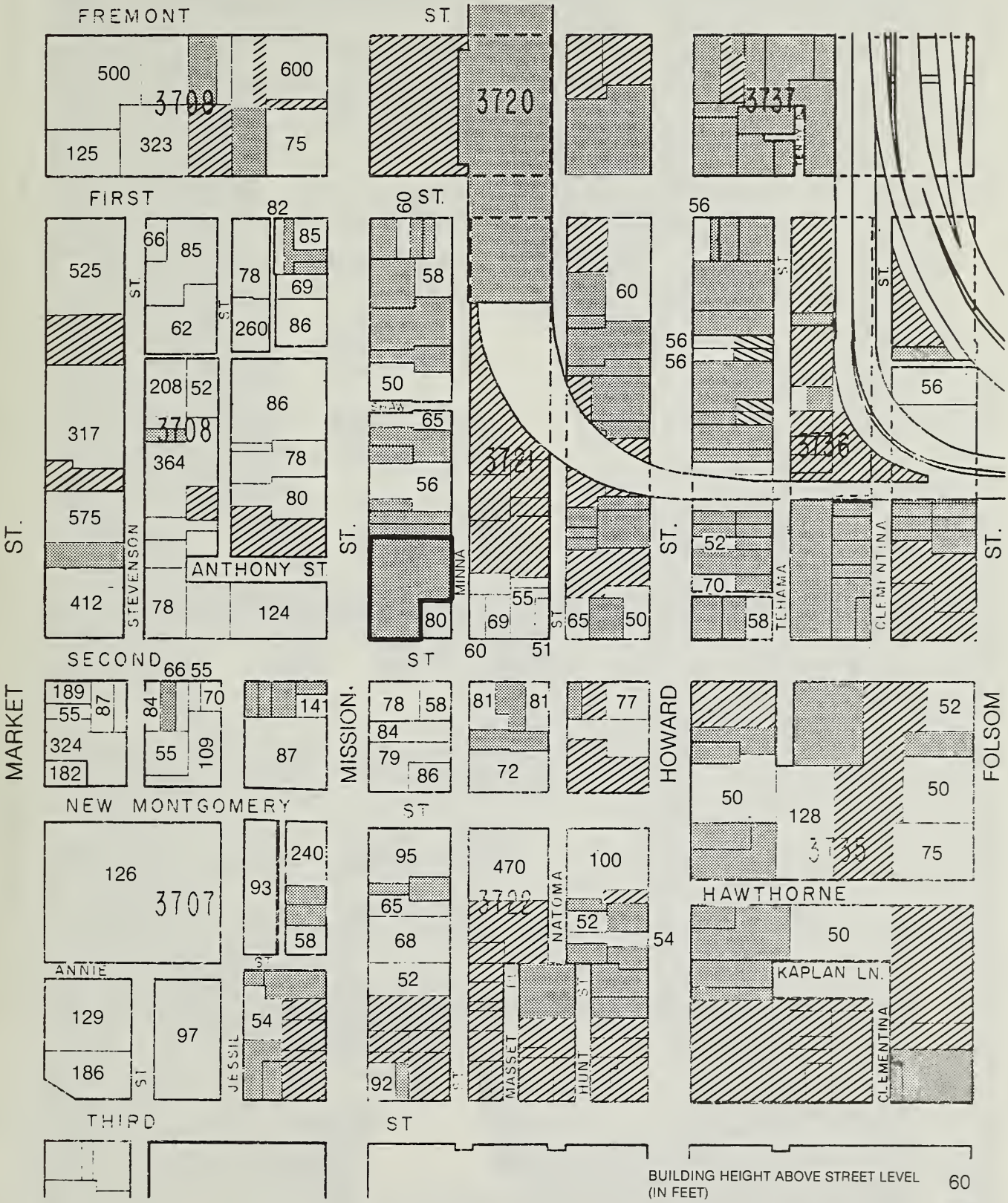
The project block, bounded by Mission, First, Howard and Second Streets, contains small- and medium-scale buildings (see Figures 11 and 12, pages 36 and 37). The design and proportions of buildings in the greater project area are irregular, consisting of a mix of architectural styles: generally Renaissance/Baroque, Gothic and Modern. Most buildings are built to the lot lines. Buildings immediately adjacent to the project site vary in height from the 92-foot Rapp building at Second and Minna to the 25-foot building at 565 Mission Street.

High-rise towers constructed in the area in the past 25 years tend to stand out as contrasting structures among older buildings, which generally share a greater harmony of scale and mass. Owing to the variety of architectural styles in the site vicinity, exterior building textures and door and window treatments vary. Building heights range from one to 42 stories. Large high-rise office structures are located east of the project site along Mission Street, and on Market Street to the north. They include the 42-story Fremont Center, the 23-story Bechtel building at 50 Beale Street, and 33-story Pacific Gateway between Main and Beale Streets. The 26-story 100 First Street building has been approved for construction at the corner of First and Mission Streets on the project block. The project block is generally located in an area where lower-scale development of older South of Market meets high-rise development of the northern part of that district. It is visually a transitional area.

Views north and east from the site area are dominated by newer high-rise buildings, including the Tishman building, Pacific Gateway, 100 Spear Street and 71 Stevenson (under construction).

EXISTING BUILDING HEIGHTS IN THE PROJECT VICINITY

FIGURE 10



SOURCE: EIP ASSOCIATES

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PROJECT AREA PHOTOGRAPH: SECOND AND MISSION INTERSECTION

FIGURE 11

PROJECT SITE

SOURCE SQUARE ONE FILM AND VIDEO

PROJECT AREA PHOTOGRAPH: MISSION STREET LOOKING SOUTHWEST FROM FIRST STREET

FIGURE 12

SOURCE: SQUARE ONE FILM AND VIDEO

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C. HISTORIC, ARCHITECTURAL AND CULTURAL RESOURCES

The San Francisco Department of City Planning (DCP) conducted a city-wide inventory of architecturally significant buildings in 1976. In the 1976 Department of City Planning Architectural Inventory, approximately 10% of the City's entire stock of buildings were awarded a rating for architectural merit ranging from a low of "0" to a high of "5". The total number of buildings which were rated from "3" to "5" represents less than 2% of the City's entire building stock.

The Foundation for San Francisco's Architectural Heritage conducted a survey which assigned ratings to buildings in the C-3 District. The survey rated buildings from a high of "A" (Highest Importance) to "D" (Minor or No Importance). The criteria used in the evaluation were based on guidelines of the National Trust for Historic Preservation, the National Register for Historic Places and the State Historic Resources Inventory.

The Downtown Plan categorizes historically and architecturally significant buildings into either Category I or II (significant buildings) or Category III or IV (contributory buildings). It is the intent of the Downtown Plan that only those buildings categorized I, II, III or IV would be protected in the C-3 area.

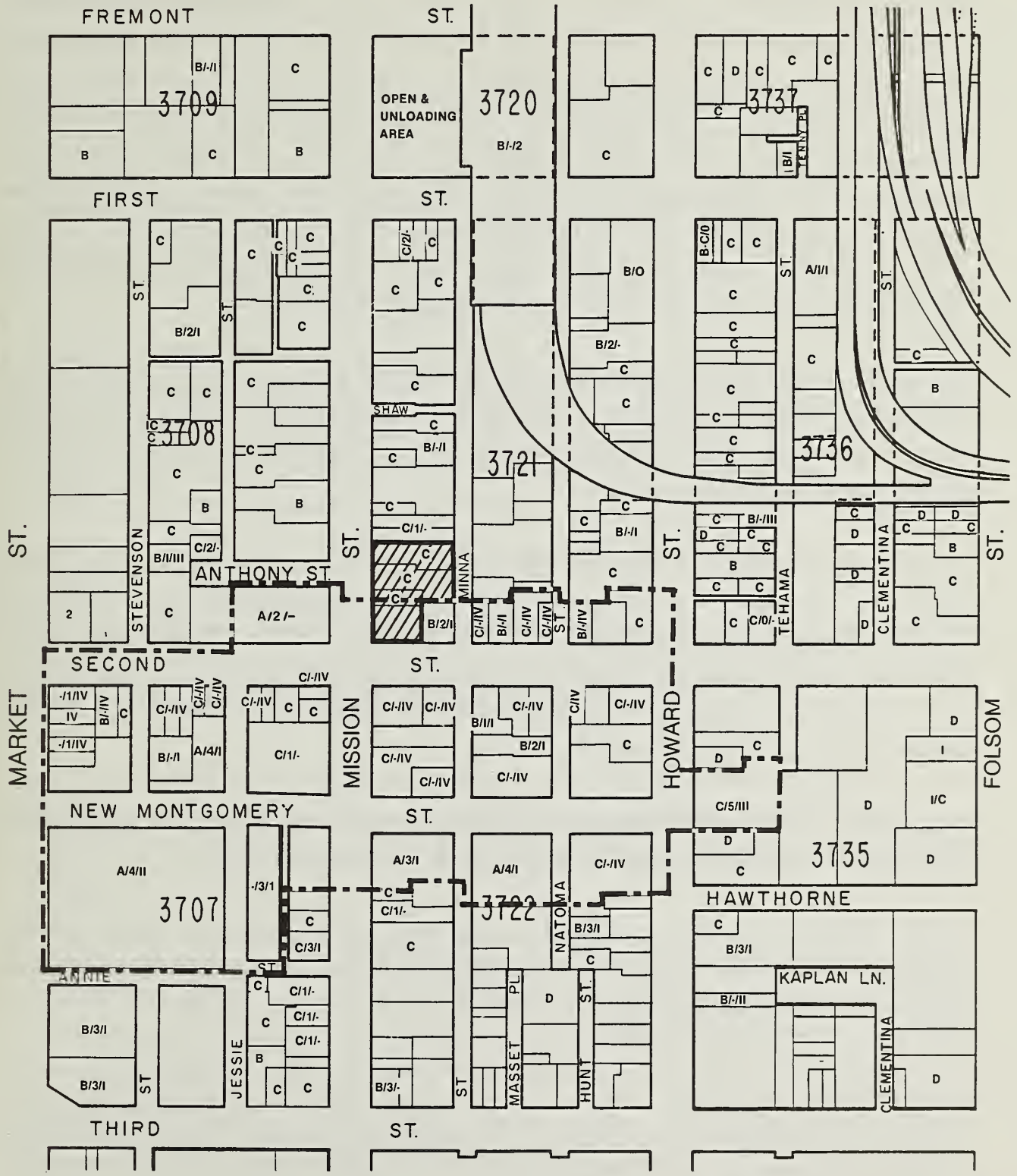
Figure 13, page 39, identifies those buildings in the project area included in (1) in 1976 Department of City Planning 1976 Architectural Inventory, (2) the Heritage Survey, and (3) the Downtown Plan. Figure 13 also delineates the New Montgomery-Second Street Conservation District.

In addition to the building-specific survey, the Downtown Plan identifies conservation districts in which review procedures would apply for unrated as well as significant and contributory buildings. One of the districts, the New Montgomery-Second Street Conservation District encompasses part of the project site.

Three of the buildings on the project site, located at 575-591 Mission Street, were rated "C" in the Heritage survey. None of the buildings on the project site were rated in the DCP 1976 Inventory or in the Downtown Plan. A portion of the proposed project site, specifically Lot 72, lies within the New Montgomery-Second Street Conservation District.

ARCHITECTURALLY AND/OR HISTORICALLY RATED BUILDINGS IN THE PROJECT VICINITY

FIGURE 13



SOURCE. SAN FRANCISCO DEPARTMENT OF CITY PLANNING, HERITAGE

FEET 0 100 200 400

HERITAGE / DCP / DOWNTOWN PLAN B/2/III

HERITAGE RATING (1979 & 1982, C-3 DISTRICTS ONLY) A-D

DCP RATING (1976, CITYWIDE) 1-4

DOWNTOWN PLAN CATEGORIES (1984, C-3 DISTRICTS ONLY) I - IV

NEW MONTGOMERY-SECOND STREET CONSERVATION DISTRICT

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There is no recorded occupation or utilization of the project site during the Prehistoric, Spanish/Mexican, or Early American periods.[1] The chances of encountering even isolated cultural specimens dating from those periods are not great. The earliest recorded history at this site took place in the early part of the Gold Rush. By 1852 a square building was located within the confines of the project site. The site was graded at some point between 1852 and 1854, however there was little modification of the property's original elevation, so any cultural materials deposited there during the early part of the Gold Rush may still lie buried beneath the present day ground surface. By the close of the Gold Rush the project site and surrounding vicinity were completely developed.

During the 1860s, Second Street, between Market and Harrison Streets, was the most fashionable shopping thoroughfare in the South of Market area. A three-story building stood on the project site. The Second Street cut of 1869 changed the character of the project site and surrounding vicinity.

Following the earthquake and fire of 1906, the area around the intersection of Second and Mission Streets contained a variety of commercial ventures and storefronts. The project site was occupied by three- and four-story brick buildings which contained storefronts and other commercial ventures with residential uses on the upper floors. It is likely that at least some of the building shown on the 1913 Sanborn Insurance Company Map still exists within the confines of the project site today.

Most recently the site was developed as ground floor retail with upper floor offices and it is this use that would be removed to make way for the proposed project.

The site condition at the time of the Gold Rush consisted of sand dunes. Since that time the Second Street cut of 1869 occurred leaving the site in flat terrain, about ten feet above the City datum at this time.

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[1] Archaeological information in this section is from Allan G. Pastron, Ph.D., "Cultural Resources Investigation of the Second and Mission Street Office Tower Development Project, San Francisco, California," January, 1986. A copy of this report has been placed on file and is available for public review at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, San Francisco, California.

D. SHADOW AND WIND

1. SHADOW

Existing structures cast shadows on streets and sidewalks and public plazas in the vicinity of the proposed project. Open space in the project area includes Tishman Plaza, Crocker Plaza, Crown Zellerbach Plaza, Mechanics Plaza, Standard Oil Plaza and the Golden Gate University entrance. These plazas are located along Market Street to the north and northeast of the project site. The nearest open space protected by Proposition K in the vicinity of the proposed project is Union Square to the west and St. Mary's Square to the northwest each of which is several city blocks from the project site. Future open space in the vicinity of the project site includes the provision of open space at second floor level on the west side of the new 100 First Street office tower, now under construction. The site of the 100 First Street office tower is approximately 500 feet to the northeast of the proposed project site. The Transbay Terminal and its staging area are located immediately east of the 100 First Street project.

2. WIND

U.S. Weather Bureau and Bay Area Air Quality Management District data show that westerly (i.e., from the west), southwesterly and northwesterly winds are the most frequent and strongest winds during all seasons in San Francisco.

Of the 16 primary wind directions measured at the Weather Bureau station, four wind directions (northwest, west-northwest, west, and west-southwest) compose the greatest frequency of occurrence as well as the majority of strong wind occurrences in San Francisco.

Average wind speeds are highest during summer and lowest during winter months. However, the strongest peak winds occur during the winter, when average speeds of more than 34 mph or more for one hour have been recorded. The highest average wind speeds are in the mid-afternoon, and the lowest are in the early morning. Peak wind speeds are distributed evenly throughout the day.

Pedestrian Comfort and Wind Criteria

Wind conditions in San Francisco partially determine pedestrian comfort on sidewalks and in other public areas. In downtown areas, flat-walled high-rise buildings can redirect wind flows around the buildings and divert winds downward to street level. Each can result in increased wind speed and turbulence at street level.

The comfort of pedestrians varies under different conditions of sun exposure, cool and warm temperatures, light and heavy clothing, and various wind speeds. Existing wind speeds at 18 sidewalk locations tested in the project vicinity range from four to 18 mph with 10 of the 18 values 11 mph or less. The windiest location is on Minna Street (see Appendix B, Figure B-1, page A-35).

With an intent to provide a comfortable wind environment for people in the downtown, Section 148 of the City Planning Code establishes an equivalent (including the effects of turbulence) windspeed (as defined in the Code) of 11 mph as the comfort criterion and 26 mph as the wind hazard criterion. Section 148 sets comfort levels of 11 mph equivalent wind speeds for areas of substantial pedestrian use and 7 mph for public seating areas. New buildings and additions to buildings may not cause ground-level winds that would exceed these levels more than 10% of the time year round between 7:00 a.m. and 6:00 p.m. Exceptions may be requested under Section 309 of the City Planning Code. No building or addition that would cause wind speeds to exceed the 26 mph hazard level for a single hour of any year would be permitted.

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[1]This section is based on a study entitled "Wind Tunnel Analysis for the Proposed Second and Mission Project," April, 1986 prepared by Don Ballanti, Certified Consulting Meteorologist, as a private subconsultant to EIP Associates. A summary of the study finds is included in Appendix B, pages A-32 to A-35, and the study data are on file at the Department of City Planning, 450 McAllister Street, San Francisco, CA.

[2]The U.S. Weather Bureau data were collected from 1891 to 1930 at 465 California Street near Montgomery Street. The Bay Area Air Quality Management District data were collected in the mid-1970s at Ellis Street, near Van Ness Avenue. (The BAAQMD station is now at 900 23rd Street. The BAAQMD is in the process of moving its station to 10 Arkansas Street, at Sixteenth Street, about one mile closer to downtown.)

[3]The U.S. Weather Bureau data used in the analysis were originally acquired at the weather station atop the old Federal Building at 50 United Nations Plaza during the years 1945-47 hourly on an annual basis for 16 wind directions.

E. TRANSPORTATION, CIRCULATION AND PARKING

In the vicinity of the project site, Howard, Folsom, and Harrison Streets, with the portions of First and Fremont between the Transbay Terminal and the Bay Bridge entrances are designated Primary Vehicular Streets in the Transportation Element of the Master Plan.[1] Market, Mission, Howard, and Folsom are designated Transit Preferential Streets. Fremont north of Folsom, First north of Howard, Second south of Howard, Third, and Fourth Streets are also Transit Preferential Streets. Both Second and Mission Streets are designated Pedestrian Oriented Streets.

Regional access to and from the East Bay and Peninsula is available via the Bay Bridge and Highway 101 with on-ramps at First/Harrison and Fourth/Harrison and off-ramps at Fremont/Howard and Fourth/Bryant. Traffic to the North Bay generally travels along Van Ness Avenue and Franklin Street or via The Embarcadero to Bay Street.

Adjacent to the project site, Mission Street is currently striped for four traffic lanes, two lanes in each direction. Parking is allowed on both sides of the street. Left turns are prohibited in both directions on Mission Street. The curb travel lanes in both directions are diamond marked transit lanes. Second Street adjacent to the project site is striped for four travel lanes, two each direction, with curb parking along both sides. Second Street north of Mission becomes three lanes, two south-bound and one north-bound, with curb parking along both sides.

Metered parking stalls are striped on both sides of Mission and Second Streets and the north side of Minna Street. There are 21 spaces along the curb adjacent to the project on Mission, Second and Minna Streets. The existing parking fee is 50 cents per hour, with a one-hour time limit. Late night parking is prohibited on selected weeknights to clear the street for cleaning.

Minna Street is a one-way alley that runs from First to Second Street. One-hour non-metered parking is allowed along the north side and no parking is permitted along the south side. However, cars do park along the south side which restricts travel to a narrow center lane. Occasionally trucks making deliveries stop in the alley blocking movement.

Muni operates 18 bus routes within two blocks of the project site. The 13, 14, 14L, and 14X run along Mission Street adjacent to the project site. The 17X runs southbound on Second Street providing express service to Park Merced. The 12 runs west on Howard and returns on Folsom. One block to the north, the 2, 5, 6, 7, 8, 9, 21, 38, 38L, 45, 71 and J, K, L, M, N Muni underground run in the Market Street Transit Corridor. One block to the west the 15, 30, 17X, 30X and 81X routes run on Third Street. The Transbay Terminal at First/Mission, one block to the east, is the terminus for the 38, 38L, 5, 6 and F. Muni stops are located on the southwest and northwest corner of Second and Mission across Second Street from the project.

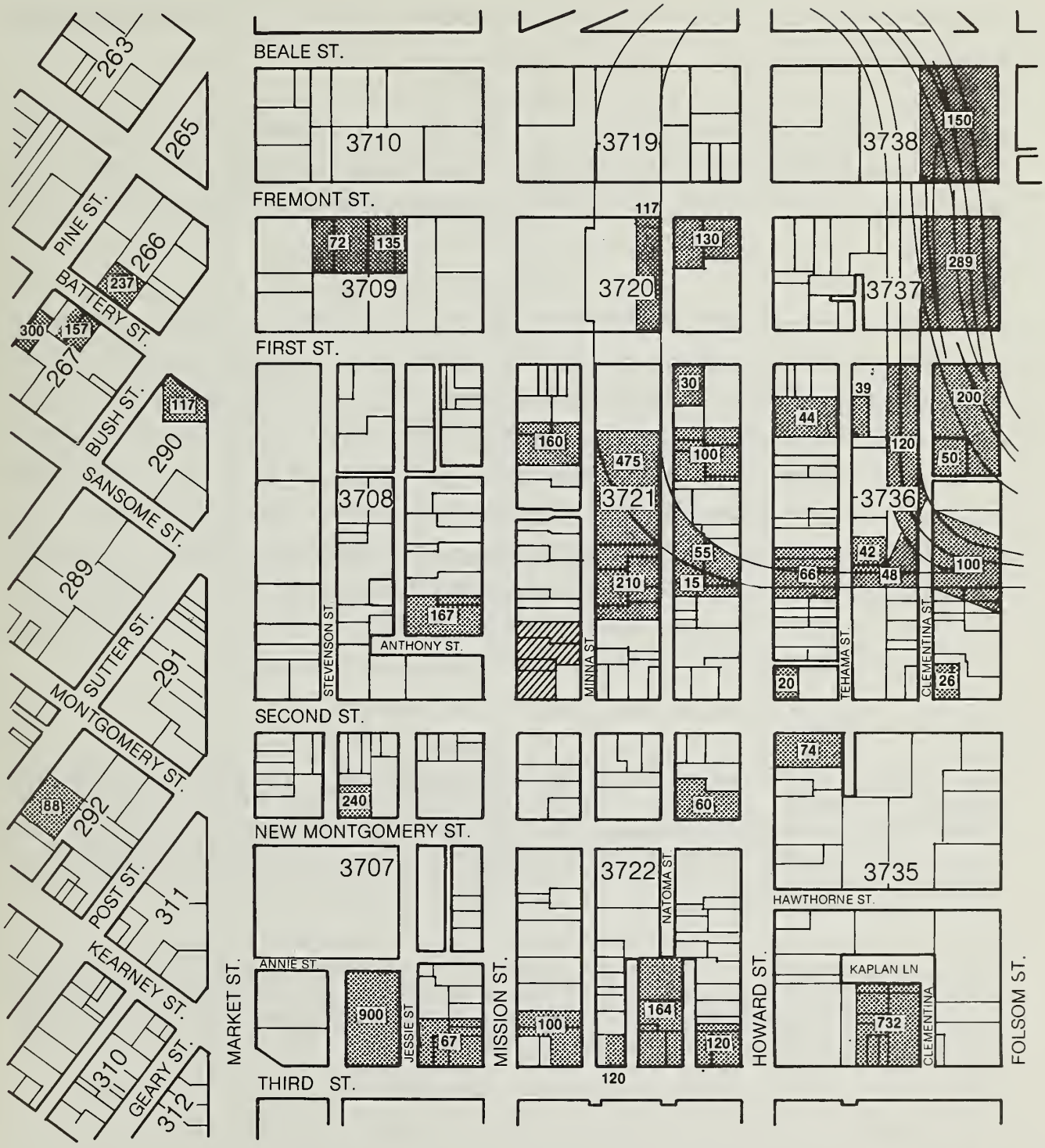
An entrance to BART and Muni underground stations is located on Market Street at Montgomery, one block from the site. San Mateo County's transit lines (Samtrans), which serves the Peninsula, operates lines 5M, 7B, and 7F on Mission Street next to the site and stop at the Transbay Terminal. One Golden Gate Transit line runs along Folsom and Howard Streets and links the site to the North Bay. Independently owned and operated Jitneys provide service along the entire length of Mission Street (from The Embarcadero to Daly City) during the a.m. and p.m. commute hours. AC transit lines provide access to and from the East Bay and are available at the Transbay Terminal. The CalTrain station is about one-half mile south of the site at Fourth and Townsend.

The RIDES carpool program, operating as a nonprofit, publicly funded corporation, provides consulting and matching services to help establish Bay Area carpools and vanpools. The project site is within the C-3-O District, which has no requirement for off-street parking for commercial uses. The site is in an area designated as the Downtown Core Automobile Control area in the Transportation Element of the Master Plan. Policies of the Plan propose reducing the number of private commuter vehicles and excess automobile traffic in the Downtown Core and discourage the addition of new short-term and long-term commuter parking.

A survey of the existing off-street public parking in the site vicinity indicates that a total of 6,334 parking stalls exist within two blocks of the site which are 87% occupied on a typical weekday (Figure 14, page 45). The daily parking rate for these lots varies from $4.50 to $12.50.

PUBLIC OFF STREET PARKING IN THE PROJECT VICINTIY

FIGURE 14



SOURCE: EIP ASSOCIATES

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Existing on- and off-street parking near the project site is over 90 percent occupied during weekdays.[2]

Mission, Market, Howard, Folsom, Third and New Montgomery Streets have been designated as Preferred Commute Bike Routes in the Transportation Element of the City's Master Plan. Of these streets, only Howard and Folsom Streets are currently striped with bike lanes.

There are sidewalks on each street fronting the site. The sidewalk on Mission Street is 11 feet wide (effective width), the Second Street sidewalk is 10 feet wide and the Minna sidewalk is 4½ feet wide. The Mission Street and Second Street crosswalks are 10 feet wide. Pedestrian conditions on the project's sidewalks and crosswalks are unimpeded during both the noon and p.m. peak hours with the exception of the Minna sidewalk and crosswalk which are generally open. Pedestrian flow rates during the noon peak hour range from Open on the Minna Street sidewalk to Unimpeded on the Mission and Second Street sidewalks and on the Mission, Second and Minna Street crosswalks. During the p.m. peak hour, pedestrian flow rates range from Open on Minna Street sidewalk and crosswalk, to Unimpeded on the Mission and Second Street sidewalks and crosswalks.

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[1]San Francisco Department of City Planning, Transportation: An Element of the Master Plan, January 1983. The Master Plan defines Primary Vehicular Streets as major routes for automobile and truck movements into and out of the downtown area, chiefly to and from the parking belts for automobiles. Transit Preferential Streets are defined as an important streets for transit operations where interference with transit vehicles by other traffic should be minimized.

[2]Field survey conducted by EIP, on-street and off-street parking survey including number of stalls, occupancy and rates, week of February 14, 1986. Data on file and available for public review at the Office of Environmental Review, Department of City Planning, City and County of San Francisco, 450 McAllister Street.

F. AIR QUALITY

The Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network that measures the ambient concentrations of six air pollutants: ozone (O3), carbon monoxide (CO), total suspended particulates (TSP), lead (Pb), nitrogen dioxide (NO2), and sulfur dioxide (SO2). On the basis of the monitoring data, the Bay Area, including San Francisco, currently is designated a non-attainment area with respect to the federal ozone and CO standards. A three-year summary of the data collected at the BAAQMD monitoring station nearest the project site (about two miles southeast at 900 23rd Street) is shown in Appendix D, page A-46, together with the corresponding federal and/or state ambient air quality standards. In 1984, there was one violation of the federal and state eight-hour CO standard, and five violations of the previous state 24-hour average TSP standard; in 1983, there was one violation of the federal and state one-hour average ozone standards and four violations of the previous state 24-hour average TSP standard; in 1982 there was one violation of the federal and state eight-hour CO standard, and three violations of the previous state 24-hour average TSP standard; and in 1981 there was one violation of the previous state 24-hour average TSP standard.[1]

BAAQMD has conducted two CO "hotspot" monitoring programs in the Bay Area, including San Francisco. One CO monitoring program was conducted during the winter of 1979-80 and included the intersection of Washington and Battery Streets in San Francisco, about one mile northeast of the site.[2] The high eight-hour average concentration was 10.1 ppm, which violates the 9-ppm state and federal standards by 1.1 ppm. The high one-hour average concentration of 15 ppm does not violate the 20-ppm state standard or the 35-ppm federal standard. Another CO monitoring program was conducted during the winter of 1980-81 and included the San Francisco intersections of Geary and Taylor Streets, about one-half mile northeast of the site, and at 100 Harrison Street at Spear, about 1 mile northeast of the site.[3] At Geary and Taylor the observed high eight-hour average concentration was 11.5 ppm, which violates the standards by 2.5 ppm and the high one-hour concentration was 15 ppm, which does not violate the standards. At Harrison Street the observed high eight-hour and one-hour average concentrations were 7.8 ppm and 13 ppm, respectively, which do not violate the standards. These data indicate that locations in San Francisco near streets with high traffic volumes and congested flows may

experience violations of the eight-hour CO standard under adverse meteorological conditions. In December 1985, the City monitored CO and counted traffic at the Sixth and Brannan intersection. These data are still being analyzed.

Comparison of these data with those from other BAAQMD monitoring stations indicate that San Francisco's air quality is among the least degraded of all the developed portions of the Bay Area. Two of the three prevailing winds, westerly and northwesterly blowing off the Pacific Ocean reduce the potential for San Francisco to receive pollutants from elsewhere in the region.

San Francisco's air quality problems, primarily CO and TSP, are due largely to pollutant emissions from within the City. CO is a non-reactive pollutant with one major source category, motor vehicles. CO concentrations are generally higher during periods of peak traffic congestion. TSP levels are relatively low near the coast, increase with distance inland, and peak in dry, sheltered valleys. The primary sources of TSP in San Francisco are demolition and construction activities, and motor vehicle travel over paved roads.

San Francisco contributes to air quality problems, primarily ozone, a regional problem, in other parts of the Bay Area. Ozone is not emitted directly, but is produced in the atmosphere over time and distance through a complex series of photochemical reactions involving hydrocarbon (HC) and nitrogen oxide (NOx) emissions, which are carried downwind as photochemical reaction occurs. Ozone standards are exceeded most often in the Santa Clara, Livermore, and Diablo Valleys, because the local topography and meteorological conditions favor the buildup of ozone and its precursors.

In 1982, emissions from motor vehicles were the source of 86% of the CO, 46% of the hydrocarbons (HC), 44% of the TSP, and 56% of the nitrogen oxides (NOx) in San Francisco, while power plant fuel combustion was the largest single source of sulfur oxides (SOx), about 33% of the total.[4] These percentages are expected to apply reasonably well to current conditions.

In response to the Bay Area's ozone and CO nonattainment designations, the Association of Bay Area Governments (ABAG), BAAQMD, and the Metropolitan Transportation

Commission (MTC) prepared and adopted the 1982 Bay Area Air Quality Plan, which establishes pollution control strategies to attain federal ozone and CO standards by 1987 as required by federal law.[5] These strategies were developed on the basis of detailed subregional emission inventories and projections, and mathematical models of pollutant behavior, and consist of stationary and mobile source emission controls and transportation improvements. The BAAQMD, MTC, and California Bureau of Automotive Repair (a state agency) have primary responsibility for implementation of these strategies.

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[1]State standards for particulate matter changed in 1983 to concentrate on fine particular matter which through inhalation has been demonstrated to have health implications. Concentration standards also changed. There is not yet an adopted method for monitoring fine particulate matter. Until the State adopts a method, it is not possible to determine what proportion of TSP in San Francisco would be subject to review against the new standards.

[2]Association of Bay Area Governments, AQMP Tech Memo 33, "Summary of 1979/1980 Hotspot Monitoring Program," Berkeley, California, June 1980.

[3]Association of Bay Area Governments, AQMP Tech Memo 40, "Results of the 1980/1981 Hotspot Monitoring Program for Carbon Monoxide," Berkeley, California, January 1982.

[4]Bay Area Air Quality Management District (BAAQMD), "Base Year 1979 Emissions Inventory Summary Report," San Francisco, California, November 1, 1982.

[5]Association of Bay Area Governments (ABAG), BAAQMD and MTC, 1982 Bay Air Quality Plan, Berkeley, California, December 1982.

G. EMPLOYMENT

Businesses at the site employ about 152 persons in a variety of occupations.[1] In the existing building are: Pacific Bell, NAMCO, Skinner Bonding and Insurance Agency, Kutler Bros., John Walsh Architects, Welsh and Acquire.

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[1] James Bennett, Markborough California Properties, written communication, November 19, 1985.

IV. ENVIRONMENTAL IMPACTS

An application for environmental evauation for the project was filed on August 22, 1985. An Initial Study of the proposed project was published on February 7, 1986, and it was determined that an Environmental Impact Report (EIR) would be required for the project. Issues determined to require no further discussion as a result of the Initial Study include light and glare impacts on other properties, noise during project operation, air quality during construction, biology, geology/topography, water, public services and utilities, hazards and energy. Therefore, this EIR does not discuss these issues. (See Appendix A, pages A-1 to A-31, for the Initial Study.) Subsequent to the Initial Study, the Department of City Planning determined that Residence Patterns and Housing required further discussion.

Not all of the impacts presented in this section are physical environmental effects as defined by the California Environmental Quality Act (CEQA). They are included here for informational purposes only.

A. LAND USE AND ZONING

1. LAND USE

The existing four buildings on the project site would be demolished and the site excavated for construction of the proposed project. The proposed project would increase the intensity of the current uses on the site (office and retail) and would add parking and open space uses. Total gross constructed area, including all commercial space, parking, open space and mechanical area would increase from 129,700 to 538,537 square feet. Gross floor area, excluding parking, open space and most mechanical area would increase from about 129,700 to 463,253 square feet, an increase in floor area ratio (FAR) from 4.7:1 to 16.8:1. Table 3, page 52, summarizes the changes in intensity by land use category.

The proposed project would decrease retail space on the project site by about 13,300 gross square feet and would add 363,355 gsf of new office space. In conjunction with other

TABLE 3
PROJECTED CHANGE IN LAND USES
(in gross square feet)

Land Use	Existing (to be demolished)	Proposed	Net Change
Office	91,563	454,918	363,355
Retail	20,650	7,350	-13,300
Open Space	0	7,890	+7,890
Parking and Loading	0	68,379	+68,379
Mechanical/Lobby	0		
Total Constructed Area	129,700	538,537	+408,837
Total Gross Floor Area as defined by City Planning Code (not including parking, loading and open space)	129,700	463,253	+333,553

Source: EIP Associates.

proposed and approved projects, the proposed project would contribute to an intensification of office land uses in the blocks south of Market. The presence of the project and other projects in the area could intensify pressures for other new development. Development of high-density office uses in this area would be encouraged by provisions of the Master Plan and by zoning of the site.

2. ZONING

The City Planning Code, as revised by the Downtown Plan Implementing Ordinance (Number 414-85, effective October 17, 1985), contains controls regarding the scale, intensity, and location of growth in downtown San Francisco; architectural preservation; open space; sunlight access; wind criteria; and transportation. The relationship of the project to selected sections of the City Planning Code, is discussed here and summarized in Table 4, page 53.

TABLE 4

RELATIONSHIP OF THE PROJECT TO PROVISIONS OF THE CITY PLANNING CODE

	Downtown Plan Limits/Requirement	Project
Height (Exhibit B)****	150 ft./500 ft. (575 ft. with allowed exemption)	45ft./457 (500 ft. to top of flagpole)
Bulk (Section 270)*		
Base Height	106.25 ft.	101.5 ft.
Lower Tower**		
Length	160 ft.	156 ft.
Diagonal	190 ft.	176 ft.
Maximum Average Floor	17,000 sq. ft.	13,468 sq. ft.
Maximum Floor	20,000 sq. ft.	14,308 sq. ft.
Upper Tower		
Length	130 ft.	126 ft.
Diagonal	160 ft./b/	151 ft.
Maximum Average Floor	12,000 sq. ft.	11,153 sq. ft.
Maximum Floor	17,000 sq. ft.	12.348 sq. ft.
Volume Reduction (above 315 ft.)	13.5%	20.0%
FAR (Section 124)	9:1 Basic 18:1 Maximum with TDR	16.8:1
TDR (Section 128)	Allowable up to 9:1 FAR equivalent to a maximum of 248,040 gsf on this site, in addition to basic FAR.	215,213 gsf of TDRs, equivalent to about 7.8:1 FAR, would be incorporated into the building.***
Open Space (Section 138)	7,771 sq. ft.	7,890
Art (Section 149)	Publicly accessible art equal to one percent of construction cost.	Project would comply.

TABLE 4 (continued)

	Downtown Plan Limits/Requirement	Project
Child Care (Section 165)	On-site child care facility or in lieu fee of $1.00 per sq. ft. of net additional office space.	Project would comply by paying in lieu fee of $363,355.
Shadow (Section 147)	Minimize substantial shadow impacts on public plazas and other publicly accessible spaces, without unduly restricting development potential: consider duration, area, and importance of sunlight to utility of open space.	Project would not add any new shadow to any public open space protected by Proposition K. The project would generate some new shadows on Chevron Plaza, the 5 Fremont Center open space, the Golden Gate University open space, and the Trans Bay Terminal open space.
Wind (Section 148)	Ground-level winds may not exceed (more than 10% of the time year round between 7:00 a.m. and 6:00 p.m.), 11 mph in areas of substantial pedestrian use and seven mph in public seating areas.	Project would cause wind speeds to violate comfort criterion of 11 mph with winds from 12-17 mph at 12 locations which were evaluated.
Off-Street Loading (Section 152.5)	Five spaces.	Four full size spaces, two van delivery spaces.
Parking (Section 155.g)	Rate structure to encourage short-term use.	Project would include 91 spaces; spaces would be operated as short-term.
Transportation Broker (Section 163)	Required.	Would be provided by building management.
Housing Program (Section 313(d)(1))	OAHPP requires 140 units for proposed 363,355 net new sq. ft. of office.	Would conform to OAHPP.

TABLE 4 (continued)

	Downtown Plan Limits/Requirement	Project
Employment (Section 163)	Local employment program and employment brokerage services required for buildings exceeding 100,000 sq. ft. to encourage employment and work training for San Francisco residents.	Program currently in preparation; building management to provide brokerage servics.
Architectural Resources	Designates buildings in Categories I to IV based on architectural merit, with related provisions regarding preservation.	No impacts. Buildings onsite are not designated in any Category or rated in any survey based on architectural merit.
Downtown Park Fund (Section 139(d))	One-time payment equal to $2.00 per sq. ft. times net additional gross sq. ft. of office.	$726,710

SECTION 309 EXCEPTIONS

Section 132.1(c). Separation of Towers

Requirement: Minimum setback above base of 15 feet from interior property line and midpoint of abutting street.

Exception: The project would be set back 2 feet less than the required amount from a 60-foot section of the southwest property line adjacent to the Rapp Building. Exception to the setback requirement could be permitted in accordance with the provisions of Section 309 of the City Planning Code under Section 132.1, subsections (c)2.B. The text of the exception language is:

> B) Exceptions may be allowed to the extent that it is determined that restrictions of adjacent properties make it unlikely that development will occur at a height or bulk which will, overall, impair access to light and air or the appearance of separation between buildings, thereby making full setbacks unnecessary.

Section 148. Reduction of Ground Level Wind Currents in C-3 Districts

Requirement: Developments may not cause ground level wind currents to exceed more than 10% of the time year-round, between 7:00 a.m. and 6:00 p.m., the comfort level of 11 mph equivalent wind speed in areas of substantial pedestrian use and 7 mph equivalent wind speed in public seating areas. Pre-existing ambient wind speeds exceeding these levels must be reduced by new development.

TABLE 4 (continued)

Exception: The project, with other recent development, would result in wind speeds of from 12-17 mph, exceeding the 11 mph (10% of the time) comfort criterion by from 1-6 mph (the project would result in winds exceeding 11 mph from about 11.7% (at measurement point 5) to about 34% of the time (at measurement point 21)) at 11 locations on Mission, Second and Minna Streets. Pre-existing ambient wind speeds exceed the 11 mph comfort criterion at ten locations on Mission, Second and Minna Streets, with resultant wind speeds ranging from 12-14 mph. The exception is requested under Section 148(a), which states:

> an exception may be granted, in accordance with the provisions of Section 309, allowing the building or addition to add to the amount of time that the comfort level is exceeded by the least practical amount of 1) it can be shown that a building or addition cannot be shaped and other wind baffling measures cannot be adopted to meet the foregoing requirements without creating an unattractive and ungainly building form and without unduly restricting the development potential of the building site in question, and 2) it is concluded that, because of the limited amount by which the comfort level is exceeded, the limited location in which the comfort level is exceeded, or the limited time during which the comfort level is exceeded, the addition is insubstantial.

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* Section numbers in parentheses refer to sections of the City Planning Code.

** In order to foster sculptured highrise building tops, the Downtown Plan includes mandatory volume reductions for the upper part ("upper tower") and lower part ("lower tower") of a highrise building.

*** The site or sites from which development rights would be transferred has (have) not been identified. The FAR on the combined preservation and development sites would be less than 9:1. The Downtown Plan excludes from the FAR: mechanical and building service space; ground-floor internal circulation areas; and ground-floor and mezzanine-level (at the discretion of the City) convenient retail, personal service and restaurant space up to 75% of the area of the ground-floor interior.

**** Reference is to Section 270(d)(3)(A), Exhibit B of the Downtown Plan Implementing Ordinance.

Source: EIP Associates; City Planning Code.

The base maximum allowable FAR in the C-3-O District is 9.0:1. FAR is the ratio of gross floor area of building to site size. The area of some building uses can be excluded from the gross floor area, such as ground floor building service and internal circulation, required replacement short-term parking, cultural, religious and social service areas, and ground-floor (and mezzanine-level, subject to approval under Section 309) retail, restaurant and personal service space up to 75% of ground-floor open space and interior areas (Section 102.8(b)11 to 16). Development greater than the basic 9.0:1 FAR is allowable up to a maximum of 18.0:1 FAR calculated on the development site, through transfer of development rights (TDR), from sites within the same zoning district that include buildings rated I-IV under the Downtown Plan with unused potential floor area. Sites contributing floor area to another site would be used in the calculation of the total floor area. The combined base FAR over the preservation transferor and receiver sites may not, exceed 9.0:1 in this Use District. The building on the development site receiving TDR must comply with limitations imposed by the City Planning Code, including review under Section 309: Permit Review in C-3 Districts.

The Downtown Plan includes four categories of architecturally significant buildings: Category I (significant buildings); Category II (significant buildings, additions to height at rear may be feasible); Category III (contributory buildings, outside a conservation district and of individual importance); and Category IV (contributory buildings, in a conservation district, encourage retention). TDRs may not be transferred to sites containing significant or contributory buildings, if development were to result in demolition or substantial alteration of those buildings. The buildings on the project site are not listed in any of the categories. About 215,213 gsf of TDRs are proposed to be transferred to the project, equivalent to an FAR of about 7.8:1.

The site is in 500-S and 150-S Height and Bulk districts; the height limit is 150 feet on Lot 72 at the corner of Second and Mission and 500 feet on the remainder of the site. Structures up to 575 feet are allowable under the provisions outlined for exemption from height limits. In the 150-S District, the project would rise to a maximum of 45 feet. At 457 feet the remainder of the project would comply with the 500-foot height limit. The S-Bulk designation controls building dimensions, floor sizes and bulk through Downtown Plan Bulk Control Charts B and C. Essentially these controls require setbacks, smaller

floor sizes and slimmer building profiles with increased building height. The controls require a base zone, of height not exceeding 1.25 times the width of the widest abutting street, in this case, Mission Street (which is about 85 feet wide), delineated by a setback, cornice or other architectural feature. The base of the project would be 101.5 feet high, compared to the maximum height of 106.5 feet allowed by the Code (1.25 x 85 = 106.5 feet).

The project's lower tower would extend from the building base, at about 101.5 feet to a height of about 315 feet; the upper tower would extend above this to 500 feet.

The City Planning Code requires usable indoor and outdoor open space, accessible to the public, as part of new development downtown. The ratio of usable open space to new building area in the C-3-O District is one square foot of open space for every 50 square feet of new building area. The proposed project would have an open space requirement of 7,711 square feet. The project would exceed that requirement with 7,890 square feet of open space on the rooftop of the third floor of the corner structure on Lot 72, inside the New Montgomery-Second Street Conservation District. The open space would be adjacent to the Category I Rapp Building and would be accessed from the elevator in the office tower and directly from Second and Mission Streets by way of an elevator located near the corner.

The City Planning Code requires that shadows on publicly accessible open space be minimized (Section 147). New buildings are to be shaped, consistent with the dictates of good design and without unduly restricting the development potential of the site, to reduce potential shadow impacts on open space. Among the factors for the determination of shadow impact are: amount of area shaded, duration of the shadow, and the importance of sunlight to the utility of the type of open space being shaded. See Chapter IV.D, page 75, for a discussion of the shadow impacts of the project.

The City Planning Code does not require off-street parking for commercial projects in the C-3-O District. Section 204.5 of the Code allows accessory parking to be included in projects where none is required equal to seven percent of the total gross floor area. In the proposed project a total of 32,877 gsf of accessory parking would be allowed under that

section. The proposed project would include a total of 32,877 gsf (91 spaces) of off-street parking on two basement levels accessed from Minna Street. The project would be located in the Downtown Core Automobile Control Area as described in the Transportation Element of the Master Plan.

The City Planning Code (Section 152.5) requires off-street loading spaces in new projects. For office use the requirement is 0.1 space per 10,000 gsf of floor area and for retail use there is no requirement for less than 10,000 gsf, with one space required for from 10,001 to 30,000 gsf. Section 153(a)6 of the Code allows for the substitution of two service vehicle spaces for each required off-street loading space, up to 50% of the required spaces. The proposed project would have a requirement of five full-sized off-street loading spaces and would comply by including four full-size off-street loading spaces and two service vehicle spaces.

B. URBAN DESIGN

The proposed project would result in the demolition of one three-story building, one four-story building and three five-story buildings. At 457 feet, the proposed project would be similar in height to other recent projects to the north and east of the project site but would be about five to ten times as high as the prevailing scale of older development in the South of Market area to the south of the project site. The building would have a height about five times the width of Mission and Second Streets, creating a greater sense of enclosure than currently exists at the project site, similar to the sense of enclosure existing in the Financial District several blocks to the north.

The base of the proposed project would have a length of 156 feet along Mission Street. Building length on Mission Street would be larger than the existing buildings on the site and larger than that of older development in the project area. The perceived length of the building base would be visually diminished by the fact that the facade design of the corner portion of the building would be distinct from that of the office tower portion of the building creating the sense that there would be two separate buildings.

The three-story portion of the project would be located directly on the corner of Second and Mission Streets, and would contain the project open space to be located on the rooftop (at the height of the fourth floor of the office tower portion). This three-story portion of the project would be located within the New Montgomery-Second Street Conservation District and, as such, would be designed to be compatible with surrounding structures and other buildings along Second Street. In particular, the vertical elements and windows would be designed in an attempt to complement similar elements in the adjacent Rapp Building and the Pacific Telephone Building directly across Mission Street.

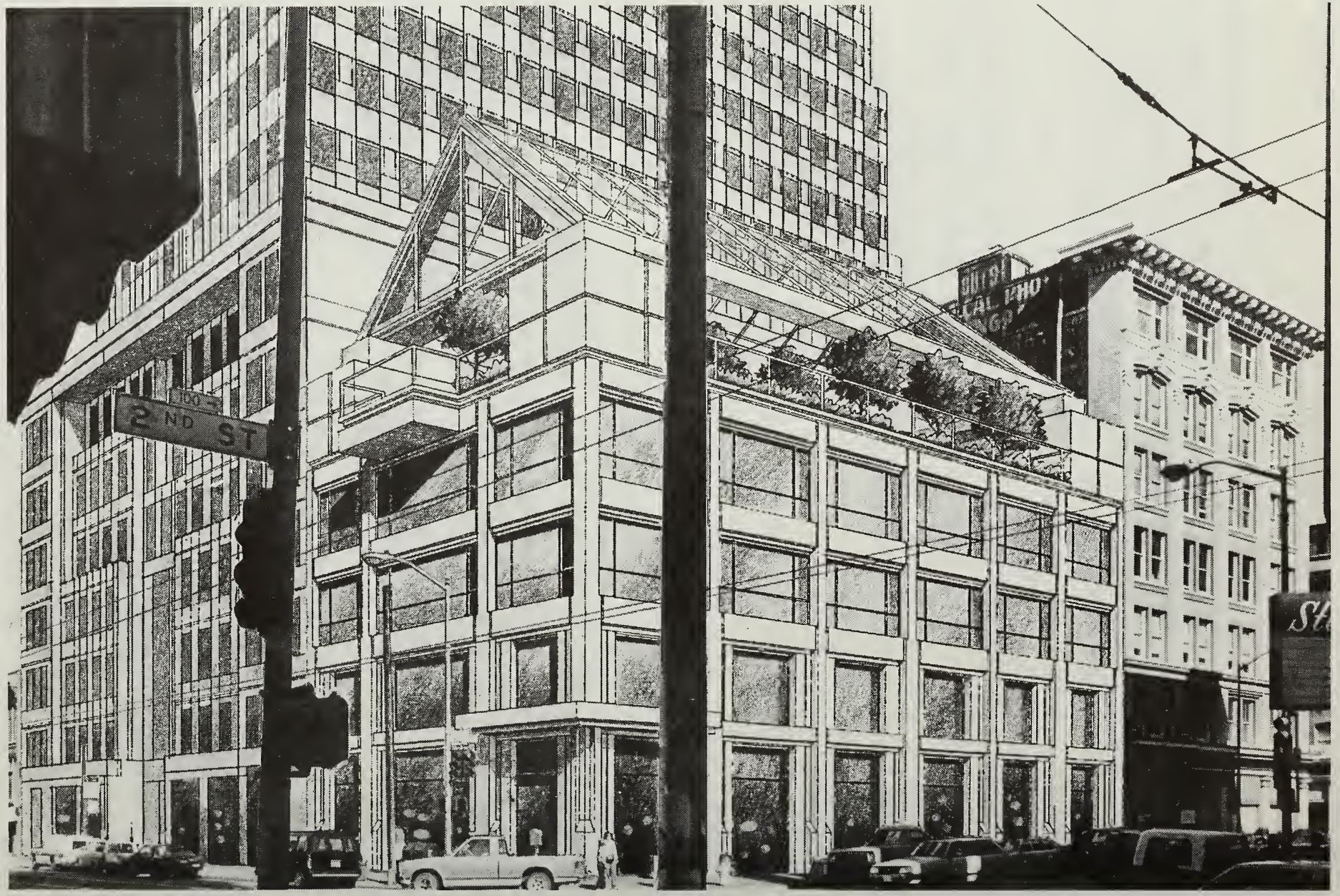
The proposed project would include facade articulation on its south face (Minna Street facade) in an attempt to relate in a complementary fashion to other older buildings immediately to the south, particularly the Pacific Telephone tower. The articulation on the south face would be intended to accent the movement of the sun along that facade of the project as shadows on the facade itself would lengthen and shorten during the day. The facades on the east, north and west sides of the project would have less articulation.

Long-range views of the project, from Twin Peaks, Potrero Hill and Treasure Island, are shown in Figures 15 through 21, pages 62 through 68. Generally, the project would be visible from the south, southwest, southeast and east. It would not stand out in views from Potrero Hill and Twin Peaks since buildings north and east of it, in the Financial District, are higher. It would appear in the City's skyline as seen from Treasure Island.

The Urban Design Element of the San Francisco Master Plan contains policies and principles which may be used to evaluate the proposed project. Table 5, page 69, The Relationship Between Applicable Urban Design Policies of the Master Plan and the Proposed Project, compares the project to these policies.

PHOTOMONTAGE OF THE PROJECT FROM THE SECOND AND MISSION INTERSECTION

FIGURE 15



SOURCE SQUARE ONE FILM AND VIDEO

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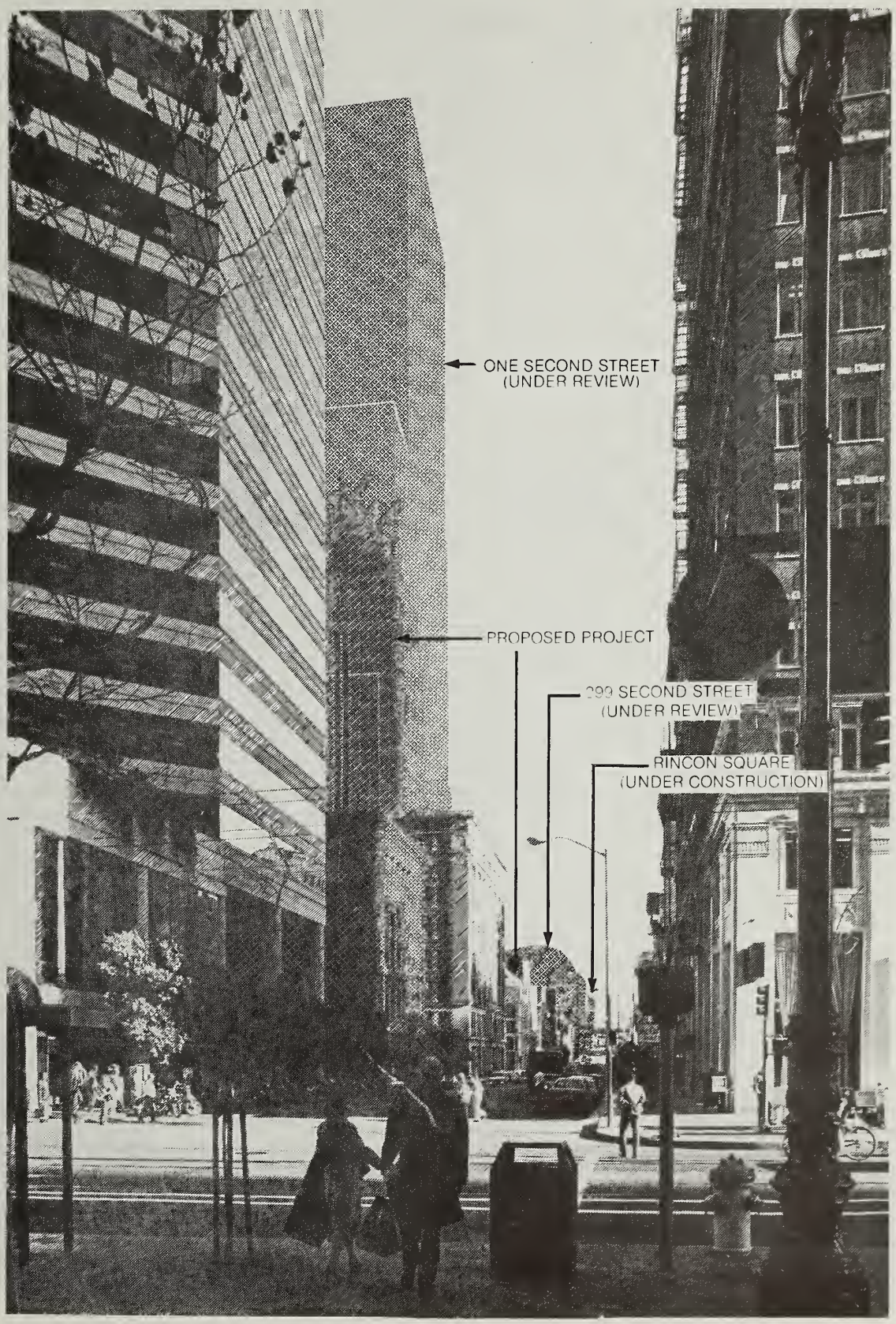
PHOTOMONTAGE OF THE PROJECT LOOKING SOUTH ON SECOND STREET FROM MARKET STREET

FIGURE 16



SOURCE: SQUARE ONE FILM AND VIDEO

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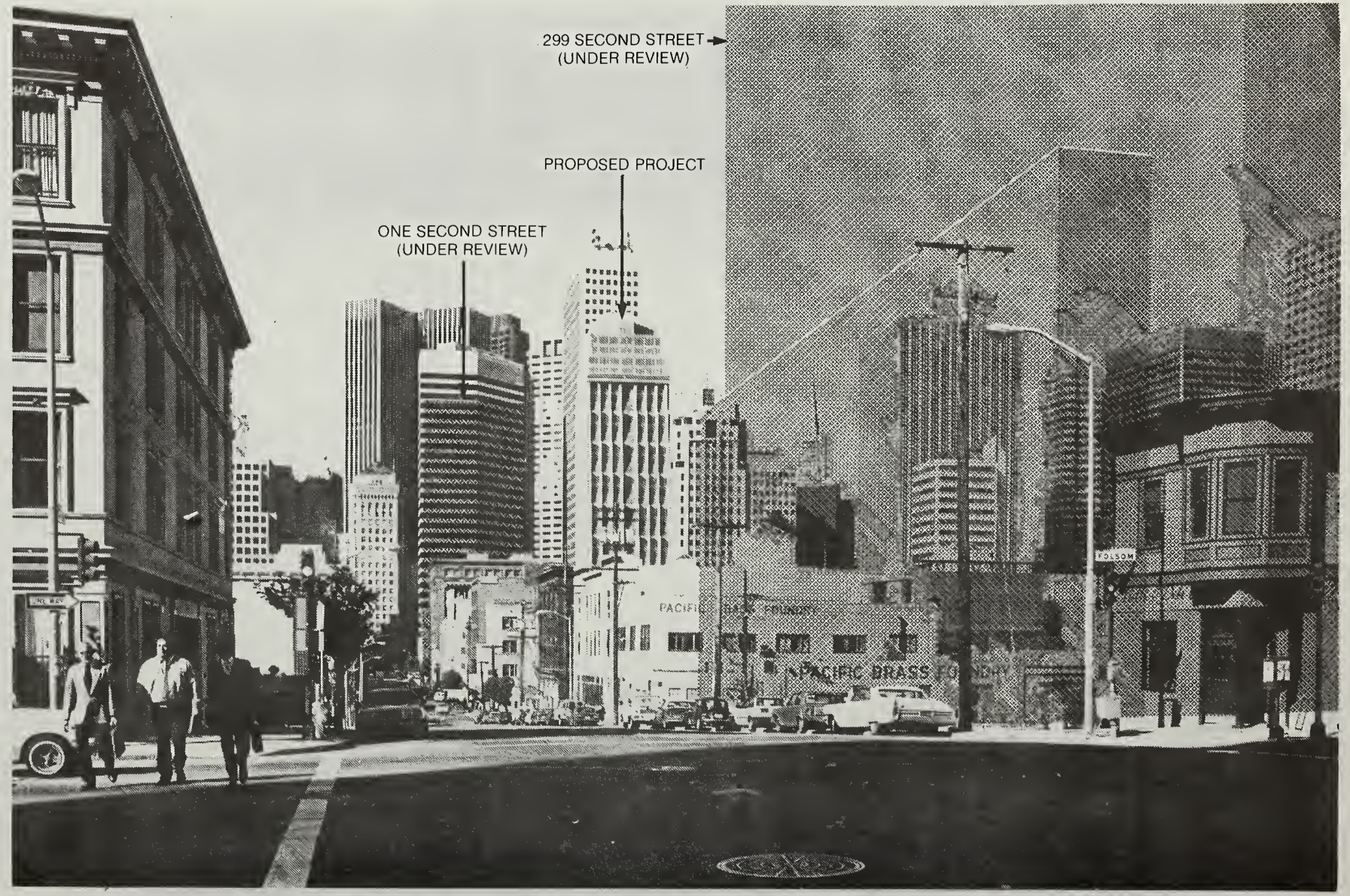
PHOTOMONTAGE OF THE PROJECT LOOKING NORTH ON SECOND STREET FROM FOLSOM STREET

FIGURE 17



SOURCE: SQUARE ONE FILM AND VIDEO

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PHOTOMONTAGE OF THE PROJECT LOOKING WEST ON MISSION STREET FROM FIRST STREET

FIGURE 18

SOURCE SQUARE ONE FILM AND VIDEO

85028

PHOTOMONTAGE OF THE PROJECT LOOKING NORTH FROM PORTERO HILL

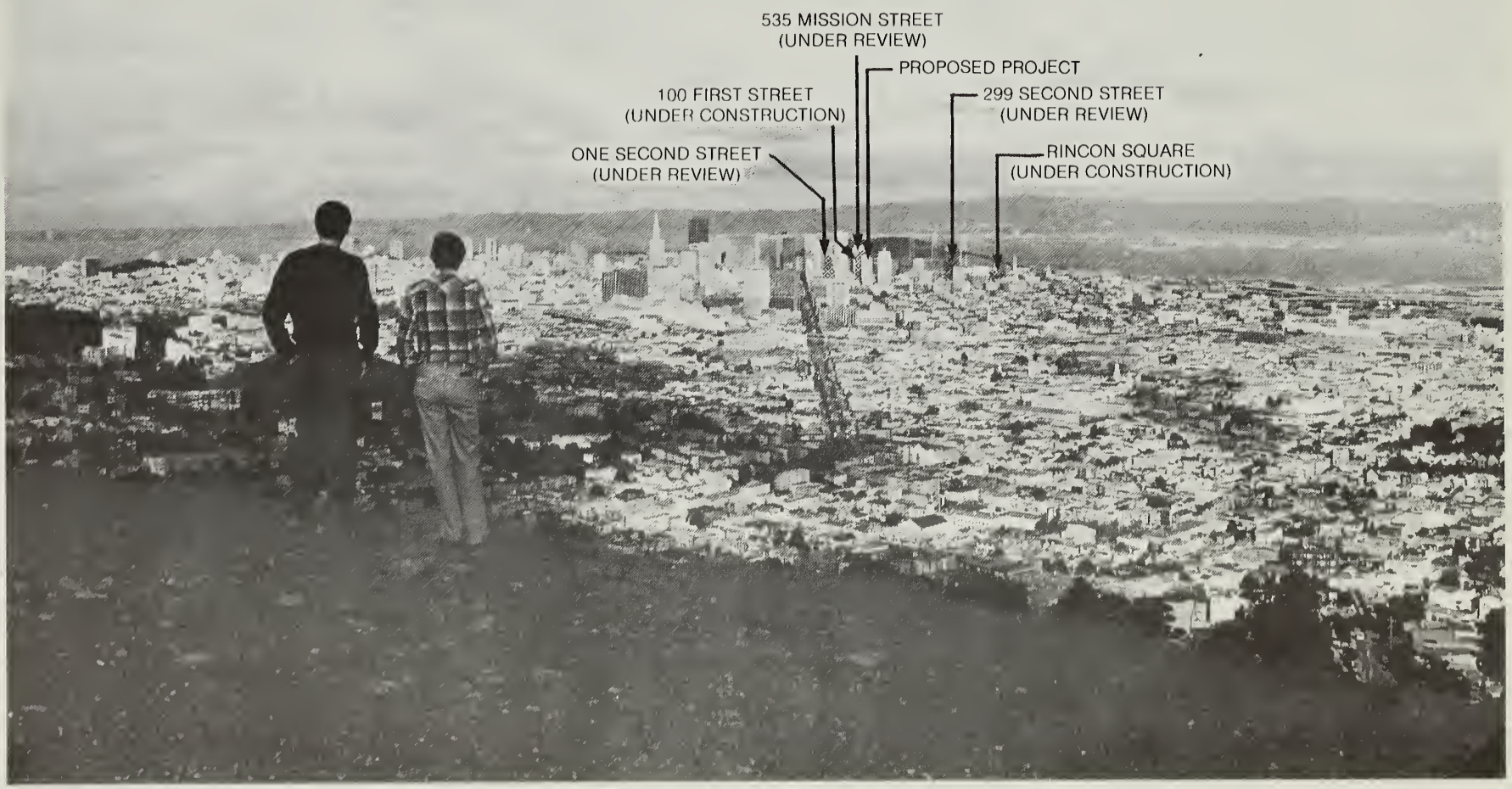
FIGURE 19

SOURCE: SQUARE ONE FILM AND VIDEO

85028

PHOTOMONTAGE OF THE PROJECT LOOKING NORTH FROM TWIN PEAKS

FIGURE 20



SOURCE: SQUARE ONE FILM AND VIDEO

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PHOTOMONTAGE OF THE PROJECT LOOKING WEST FROM TREASURE ISLAND

FIGURE 21

SOURCE SQUARE ONE FILM AND VIDEO

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TABLE 5

RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE MASTER PLAN AND THE PROPOSED PROJECT

URBAN DESIGN PLAN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Objective 1, Policy 1 - "Recognize and protect major views in the City, with particular attention to those of open space and water." (p. 10)	The project site is located at the intersection of Second and Mission Streets. The project would not block views along the Second Street corridor, nor would it obstruct any public views of the Bay.
Objective 1, Policy 3 - Recognize that buildings, when seen together, produce a total effect that characterizes the City and its districts." (p. 10)	The proposed 457-ft. tall building would be taller than the 92-ft. tall Rapp building and the 124-ft. tall Pacific Telephone building (immediately across Mission Street); it would be about 150 ft. taller than the new 100 First Street building. It would be similar in height to buildings about one block to the north and east on First and Fremont Streets between Market and Mission.
Objective 1, Policy 6 - "Make centers of activity more prominent through design of street features and by other means." (p. 12)	The project would increase the visual prominence of the site, by increasing building height on the site and pedestrian interest, by providing a large open entrance-way at the Mission/Second intersection, compared to the existing buildings. It would include ground-level retail space and public art visible to passing pedestrians and drivers.
Objective 2, Policy 4 - "Preserve notable landmarks and areas of historic, architectural or aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development." (p. 25)	The buildings on the site are not landmarks and do not have significant or contributory status under the Downtown Plan, and were not rated in the City's 1976 Architectural Inventory or the Heritage architectural survey. Through the use of TDRs, the project would preserve a significant or contributory building elsewhere in the C-3-0 District.
Objective 2, Policy 6 - "Respect the character of older development nearby in the design of new buildings." (p. 25)	The project would differ in form and scale from older development in the vicinity. The height of the base is intended to compliment the adjacent Rapp building. The project would be faced in light colored stone or terra cotta, intended to compliment building materials of adjacent structures.

TABLE 5 (continued)

URBAN DESIGN PLAN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Objective 3, Policy 1 - "Promote harmony in the visual relationships and transitions between new and older buildings." (p. 36)	The project would be taller and bulkier than adjacent older development; it's unarticulated sides (northeast, northwest and southwest) would not provide transition to adjacent buildings. The structure would include a 13-to 20-foot setback above the 98-foot base, increasing the perception of a lowered streetwall. The southeast side of the structure would be articulated and stepped-back, relating to the Pacific Telephone Building, one block to the southwest.
Objective 3, Policy 2 - "Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance." (p. 36)	The project is intended to be similar in shape to nearby buildings; in particular the corner portion of the project is intended to relate to the buildings in the New Montgomery Street Conservation District. The facade materials would be a light stone color either masonry or terra cotta, relating to the light-colored Rapp Building adjacent to the project site and nearby Pacific Telephone Building.
Objective 3, Policy 3 - "Promote efforts to achieve high quality of design for buildings to be constructed at prominent locations." (p. 36)	The building would include architectural features intended to complement adjacent development and to be in character with existing high-rise development in the C-3 District of San Francisco.
Objective 3, Policy 4 - "Promote building forms that will respect and improve the integrity of open spaces and other public areas. (p. 36	The building would provide 7,890 gsf of public open space on a fourth floor plaza. The building would not cast new shadows on public open space regulated by Proposition K. The project would cast shadows on open space areas not subject to Proposition K.
Objective 3, Policy 5 - "Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development." (p. 36)	The project would be taller and more visible than existing structures along the south frontage of Mission Street. At 32 stories, it would be higher than some newer high-rise buildings, such as the 26-story 100 First building and lower than others, such as the 35-story 345 California Street building. The project would be taller than older, shorter buildings such as the six-story Rapp building on the east.

TABLE 5 (continued)

URBAN DESIGN PLAN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
	A portion of the project fronting on Mission Street would be visible in the skyline from Treasure Island. As viewed from Potrero Hill and Twin Peaks, the project would blend into the foreground of other buildings which currently define the Skyline.
Objective 3, Policy 6 - "Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction." (p. 37)	The project would be within the bulk limits designated for the site by the Downtown Plan. The upper tower would have a volume reduction of about 20% (a 13.5% reduction is required). The facade design of the building base would visually separate the corner portion of the project from the office tower portion, visually lessening the apparent bulk of the building base.
DOWNTOWN PLAN - URBAN FORM CHAPTER POLICIES	
"Foster sculpturing of building form, less overpowering buildings and more interesting building tops." (p. 84)	The upper floors would be set back on three sides, tapering the building top, and would be topped by a 43-foot flag pole. The facade on the corner (three-story) portion of the project would be designed to include elements of existing adjacent rated buildings such as the Rapp building.
"Maintain separation between buildings to preserve light and air and prevent excessive bulk." (p. 96)	Above the base, the project would be set back about 20 ft. from the the northeast interior lot line and 13 ft. from the southwest interior lot line adjacent to the Rapp Building. The project would require exception from Section 132.1 of the City Planning Code for a setback two feet less than the required 15 feet.

TABLE 5 (continued)

URBAN DESIGN PLAN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
"Assure that new buildings contribute to the visual unity of the City." (p. 105)	The project would incorporate a defined base element of similar height to those of the adjacent Rapp building. The articulation and progressive setbacks on the southeast facade and the light and stone color of the building skin would be intended to relate to surrounding buildings, primarily the nearby Pacific Telephone Building and the adjacent Rapp Building.
Encourage more variation in building facades and greater harmony with older buildings through use of architectural embellishments and bay or recessed windows." (p. 105)	The project would be set back above the building base and would include articulation on the south facade in contrast to the smoother north facade.
"Conserve the traditional street to building relationship that characterizes downtown San Francisco." (p. 106)	The building's base would define a streetwall height relating to existing older development nearby (including the Rapp building).
"Provide setbacks above a building base to maintain the continuity of the predominant streetwalls along the street." (p. 106)	The proposed setback above the base would maintain the continuity of the existing streetwall.
"Maintain and enhance the traditional downtown street pattern of projecting cornices on smaller buildings and projecting belt courses on taller buildings." (p. 107)	The project would not incorporate a projecting belt course; the project would not have a horizontal projection over the pedestrian entrance on Mission Street.
"Use design and materials and include activities at the ground floor to create pedestrian interest." (p. 107)	The entry, which would incorporate architectural detailing, and possibly public art, and the retail space on the ground floor would create pedestrian interest.

Source: Urban Design Element, San Francisco Master Plan, 1971; Downtown Plan, 1985; EIP Associates, Inc.

C. ARCHITECTURAL, HISTORIC AND CULTURAL RESOURCES

An archaeological resources report was prepared for the project site and is on file and available for public review.[1]

The archival research conducted on the project site identified documented occupation of the project site in the early part of the Gold Rush. By 1852, when the first U.S. coast Survey map appeared, a square building was located within the confines of the subject parcel. The site was graded at some point between 1852 and 1854, however, there was little modification of the property's original elevation so any cultural materials deposited there during the early part of the Gold Rush may still lie buried beneath the ground surface. "The possibility of an assemblage of cultural materials from the early Gold Rush period within the confines of the project site would represent a find of demonstrable significance."[1] To a lesser degree, so do those archaeological remains associated with the shops and dwellings that existed along Second Street during the 1860s, when it was the most well-known street in the South of Market area. The cultural resources in question possibly consist of architectural remnants, trash pits, privies, as well as other associated archaeological features and objects. The buildings on the site date from the Twentieth Century Period. The proposed project would probably include excavation to about 13 feet below the San Francisco City Datum (SFD), about 10 feet below the existing basement.

The report suggests that there is little likelihood of encountering archaeological resources from the prehistoric, Spanish or Mexican periods (ca. 8000 B.C. - 1845 A.D.) on the project site. It is doubtful that remains from the early American period (1846-1848) would be recovered, as the project site remained undeveloped throughout those years.

Excavation and pile driving for the proposed project might intrude upon remains of the Gold Rush and later periods and might damage such resources irretrievably. Further investigation would be needed to determine means of preserving or removing resources intact, if they were encountered (see Mitigation Measures, page 132).

[1] An archival search was conducted for the project by Allen Pastron, Ph.D., January 1986; the resulting cultural resources report entitled Cultural Resources Evaluation of the Second and Mission Office Tower Development Project, San Francisco, California, is on file and available for public review at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, San Francisco, California, 94102.

D. SHADOW AND WIND

1. SHADOW

Shadow patterns for existing and proposed buildings in the project area are shown for 10:00 a.m., noon, and 3:00 p.m. for the four seasons: during winter and summer solstices when the sun is at its lowest and highest and during the spring and fall equinoxes when the sun is at its midpoint. (See Figures 22 through 25, pages 76 through 79.) The analysis includes shadows cast on streets, sidewalks, pedestrian areas, and open space in the area potentially affected by the proposed project. A shadow outline of the project as though cast on a flat plane is shown to illustrate the scale of the project in relation to the structures that would surround it. Shadows that would be cast on building rooftops are not shown. The diagrams show existing and proposed building shadows and net new shadow due to the project.

March 21 (PST)

At 10:00 a.m. on March 21 (see Figure 22), the project would add shadows along Mission Street and its northern sidewalks opposite the project site and to a portion of the intersection of Second and Mission Streets. A portion of Anthony Street and its sidewalks immediately north of the proposed building would also be shaded.

At 12:00 noon on March 21 (see Figure 22), the proposed building would shade a section of Mission Street north of the project site. Shadows would also be added to the northern sidewalk of Mission Street opposite the site and to the northeast of the site.

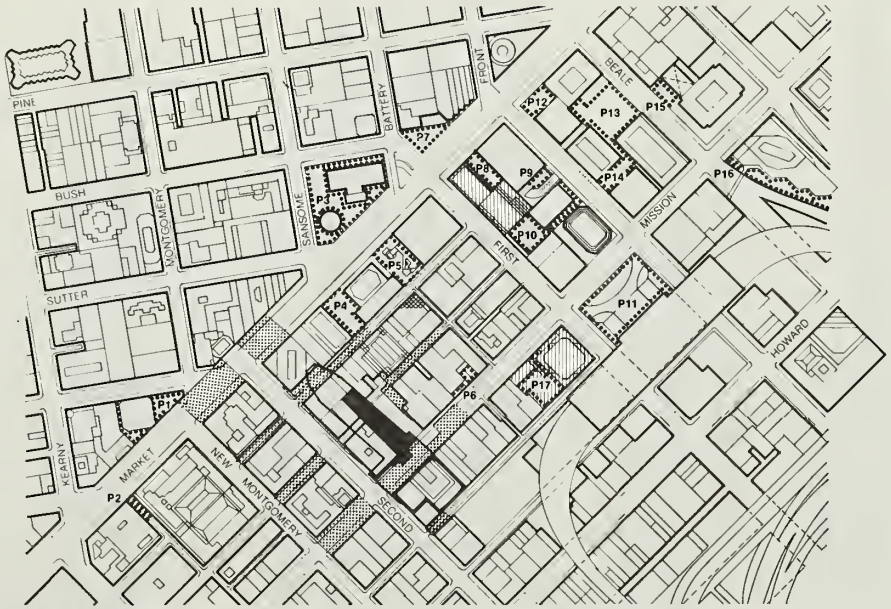
At 3:00 p.m. on March (see Figure 22), the project would add to existing shadows on Minna Street east of the project site. About 40% of proposed open space at the second floor level on the site of 100 First Street office tower would be newly shaded by the project at this time. A total of about 75% of the open space would be shaded at this time, including about 35% of the open space which would be covered by existing shadows. About 25% of the space would be open to available sunlight.

June 21 (PDT)

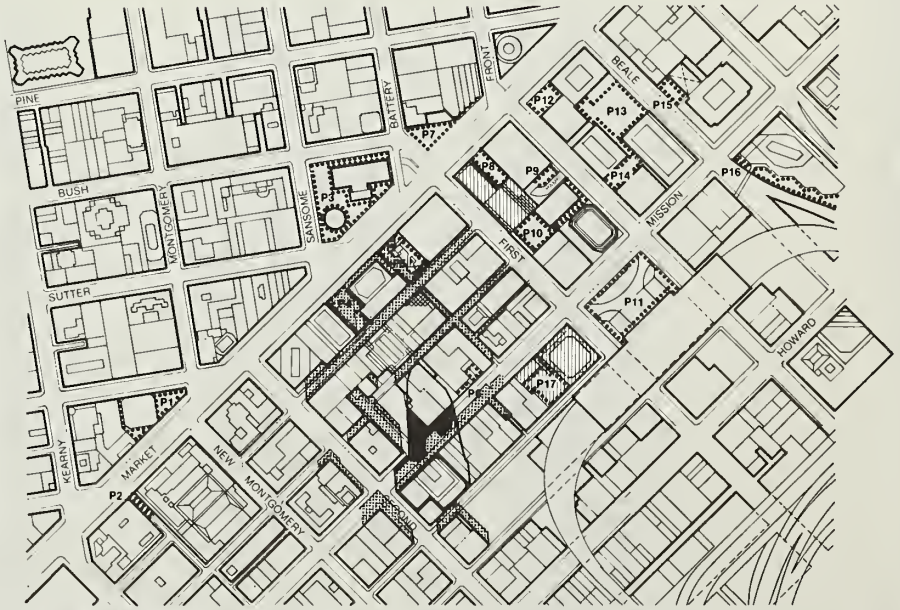
At 10:00 a.m. on June 21 (see Figure 23), the project would add shadows along Mission Street and its northern sidewalks opposite the project site, and to a portion of the

SHADOW DIAGRAMS - MARCH 21

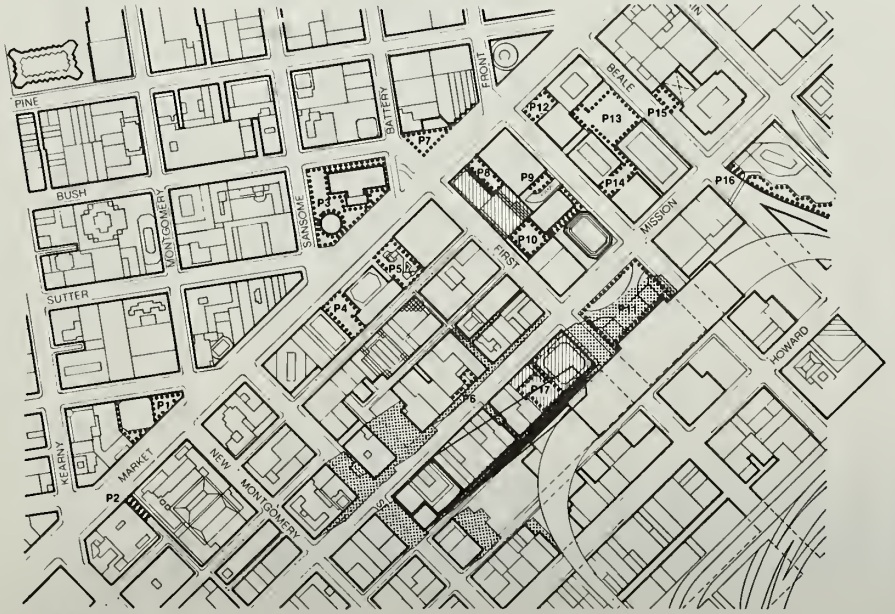
FIGURE 22



10 AM PST



12 NOON PST



3 PM PST

LEGEND:

- EXISTING SHADOWS
- NEW SHADOWS
- SHADOW OUTLINE
- PROJECT SITE
- BUILDINGS UNDER CONSTRUCTION
- APPROVED FOR CONSTURCTION

PRIVATE OPEN SPACES

P1	McKESSON PLAZA
P2	ANNIE ALLEY
P3	CROWN ZELLERBACK PLAZA
P4	CHEVRON PLAZA
P5	TISHMAN PLAZA
P6	GOLDEN GATE UNIVERSITY
P7	MECHANICS PLAZA
P8	METROPOLITAN PLAZA
P9	425 MARKET ST. PLAZA
P10	5 FREMONT CENTER
P11	TRANSBAY TERMINAL
P12	333 MARKET ST. PLAZA
P13	S.D. BECTEL PLAZA
P14	BECTEL PLAZA
P15	P.G.&E. PLAZA
P16	201 MISSION STREET
P17	100 FIRST STREET

FEET
0 200 400 800

SOURCE: EIP ASSOCIATES

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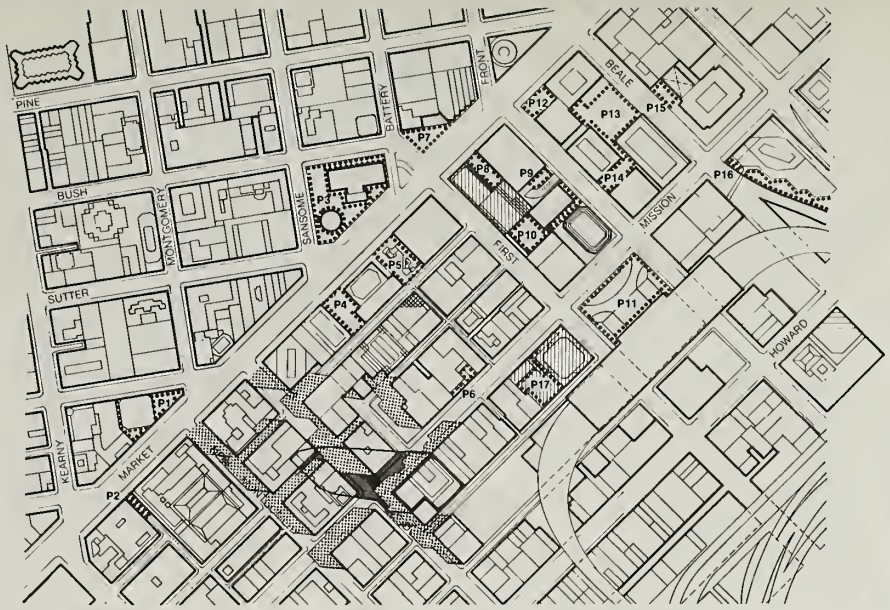
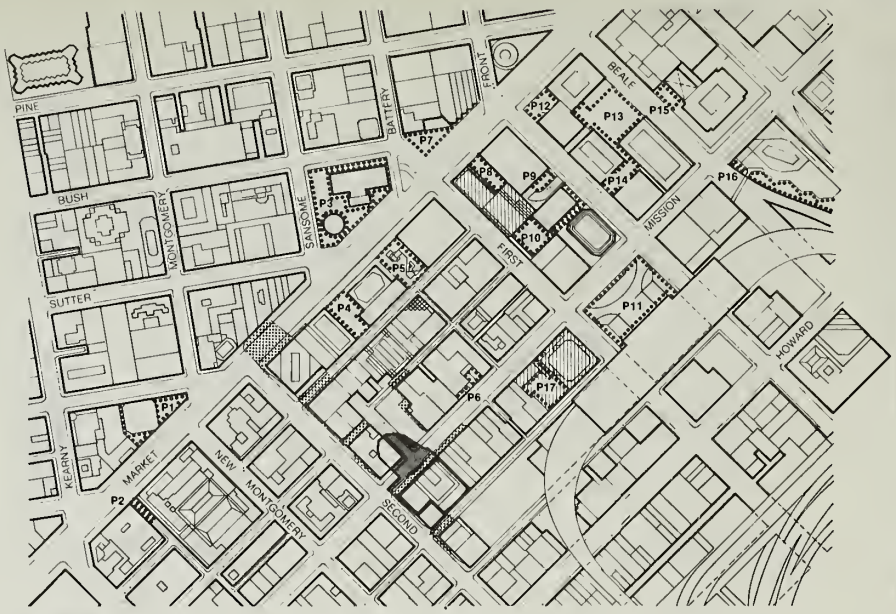
SHADOW DIAGRAMS - JUNE 21

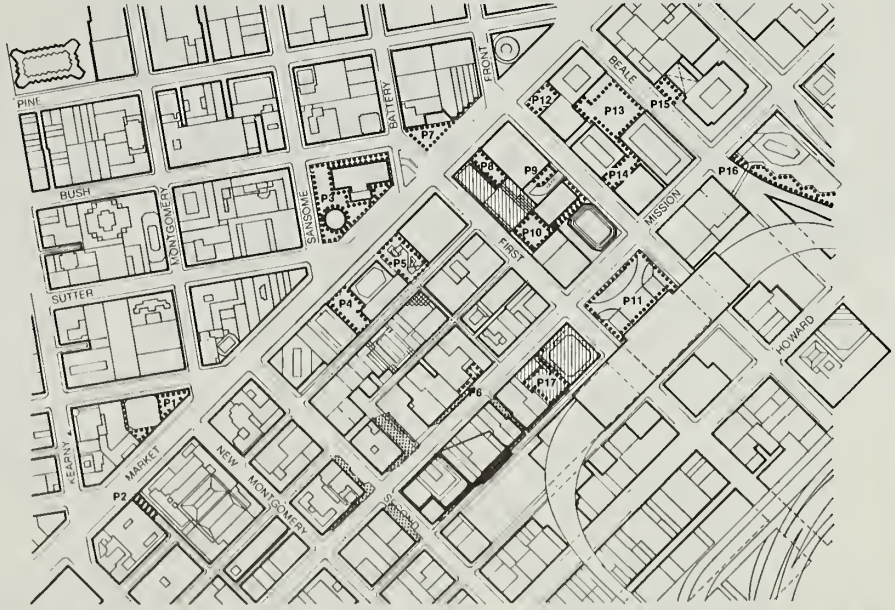
FIGURE 23



10 AM PST



12 NOON PST



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LEGEND:

- EXISTING SHADOWS
- NEW SHADOWS
- SHADOW OUTLINE
- PROJECT SITE
- BUILDINGS UNDER CONSTRUCTION
- APPROVED FOR CONSTURCTION

PRIVATE OPEN SPACES

P1	McKESSON PLAZA
P2	ANNIE ALLEY
P3	CROWN ZELLERBACK PLAZA
P4	CHEVRON PLAZA
P5	TISHMAN PLAZA
P6	GOLDEN GATE UNIVERSITY
P7	MECHANICS PLAZA
P8	METROPOLITAN PLAZA
P9	425 MARKET ST. PLAZA
P10	5 FREMONT CENTER
P11	TRANSBAY TERMINAL
P12	333 MARKET ST. PLAZA
P13	S.D. BECTEL PLAZA
P14	BECTEL PLAZA
P15	P.G.&E. PLAZA
P16	201 MISSION STREET
P17	100 FIRST STREET

FEET
0 200 400 800

SOURCE: EIP ASSOCIATES

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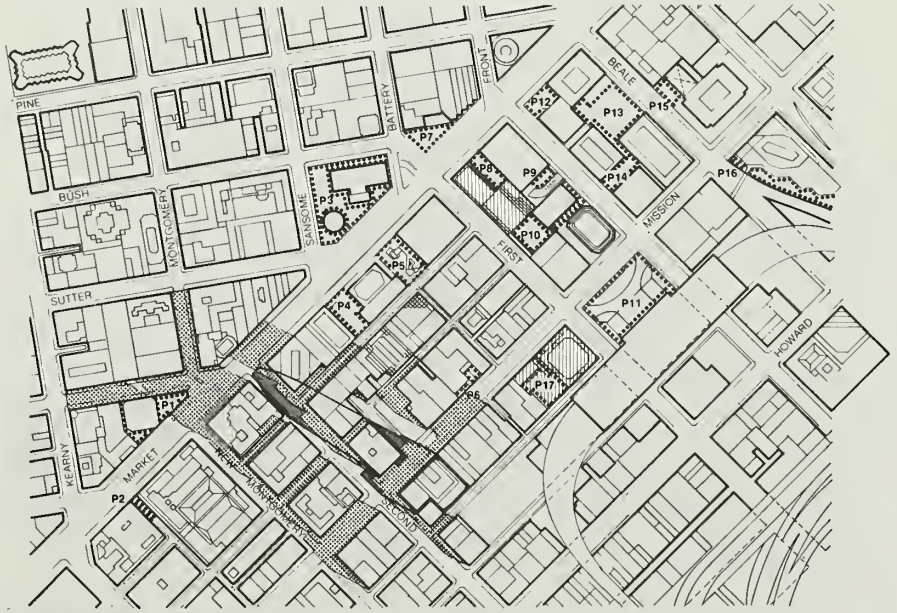
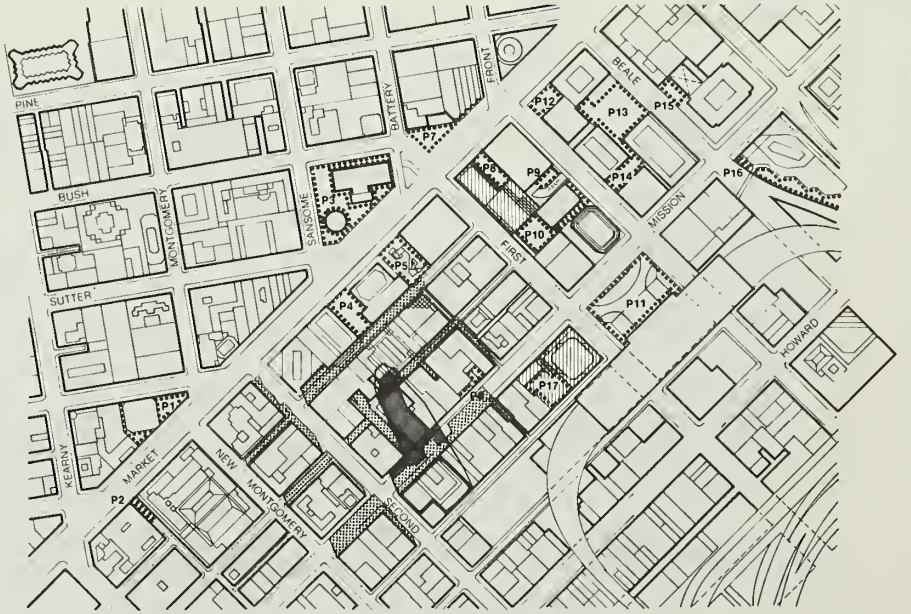
SHADOW DIAGRAMS - SEPTEMBER 21

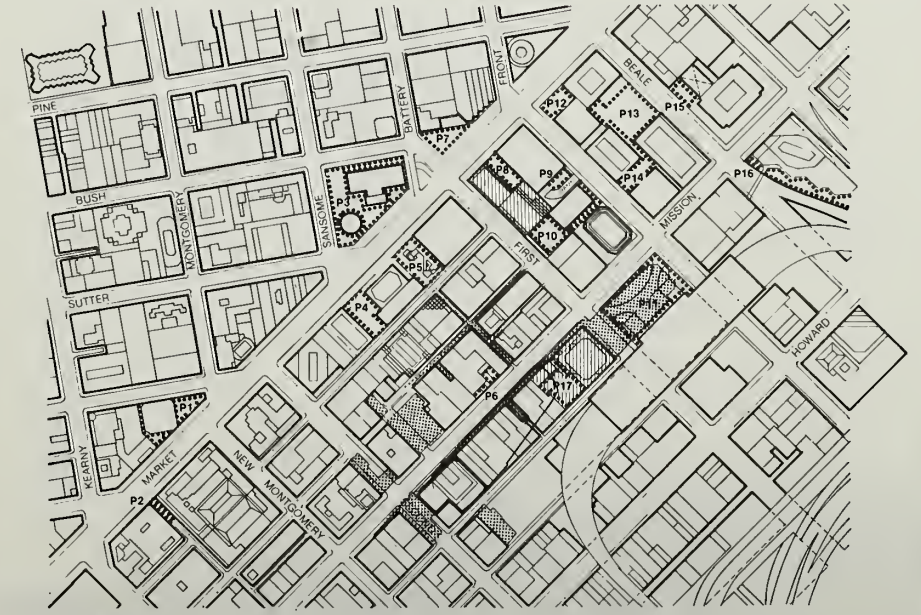
FIGURE 24



10 AM PST



12 NOON PST



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LEGEND:

- EXISTING SHADOWS
- NEW SHADOWS
- SHADOW OUTLINE
- PROJECT SITE
- BUILDINGS UNDER CONSTRUCTION
- APPROVED FOR CONSTURCTION

PRIVATE OPEN SPACES

P1	McKESSON PLAZA
P2	ANNIE ALLEY
P3	CROWN ZELLERBACK PLAZA
P4	CHEVRON PLAZA
P5	TISHMAN PLAZA
P6	GOLDEN GATE UNIVERSITY
P7	MECHANICS PLAZA
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P9	425 MARKET ST. PLAZA
P10	5 FREMONT CENTER
P11	TRANSBAY TERMINAL
P12	333 MARKET ST. PLAZA
P13	S.D. BECTEL PLAZA
P14	BECTEL PLAZA
P15	P.G.&E. PLAZA
P16	201 MISSION STREET
P17	100 FIRST STREET

FEET
0 200 400 800

SOURCE: EIP ASSOCIATES

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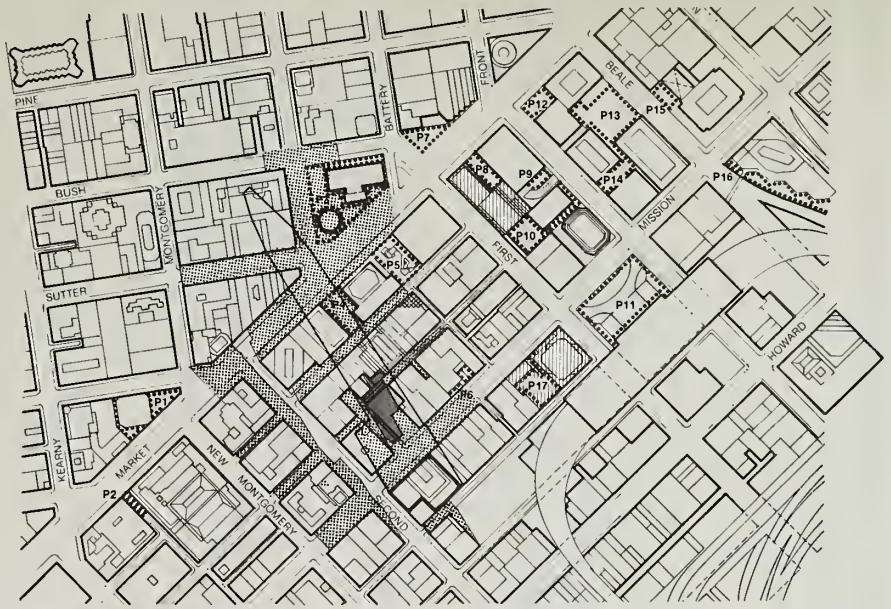
SHADOW DIAGRAMS - DECEMBER 21

FIGURE 25



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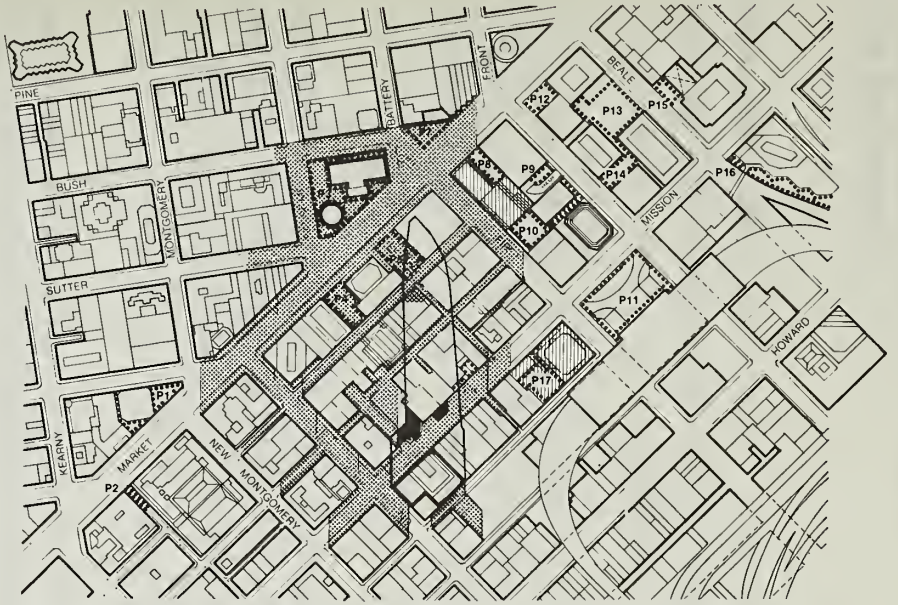

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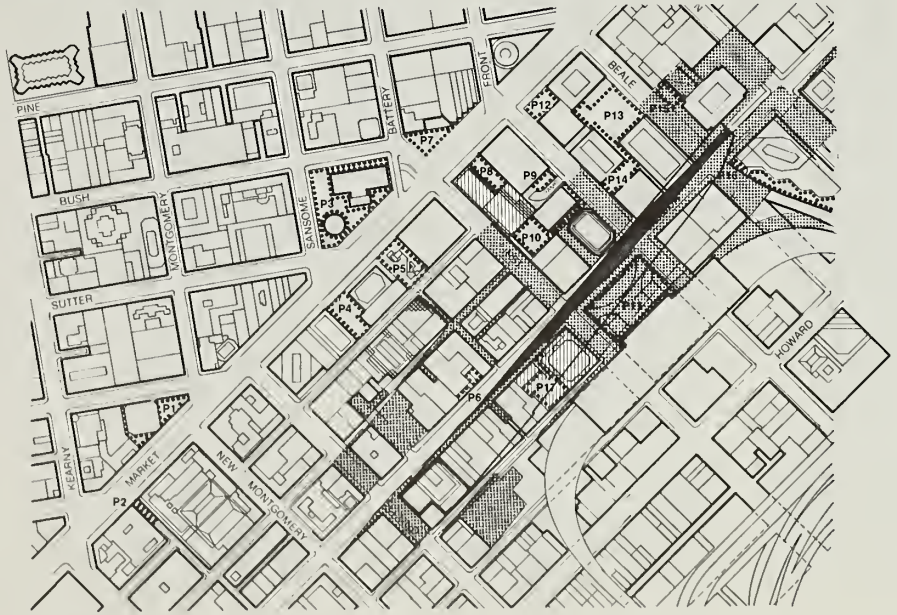

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LEGEND:

- EXISTING SHADOWS
- NEW SHADOWS
- SHADOW OUTLINE
- PROJECT SITE
- BUILDINGS UNDER CONSTRUCTION
- APPROVED FOR CONSTURCTION

PRIVATE OPEN SPACES

P1	McKESSON PLAZA
P2	ANNIE ALLEY
P3	CROWN ZELLERBACK PLAZA
P4	CHEVRON PLAZA
P5	TISHMAN PLAZA
P6	GOLDEN GATE UNIVERSITY
P7	MECHANICS PLAZA
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P9	425 MARKET ST. PLAZA
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P13	S.D. BECTEL PLAZA
P14	BECTEL PLAZA
P15	P.G.&E. PLAZA
P16	201 MISSION STREET
P17	100 FIRST STREET

FEET
0 200 400 800

SOURCE: EIP ASSOCIATES

intersection of Second and Mission Streets. A portion of Second Street and its sidewalks northwest of the proposed building would be shaded. A section of Stevenson Street west of its intersection with Second Street would also be shaded.

At 12:00 noon on June 21 (see Figure 23), the proposed building would shade a section of Mission Street north of the project site. Shadows would be added to the northern sidewalk of Mission Street opposite the site. Shadows would also be added to Anthony Street and its sidewalks north of the project site at this time.

At 3:00 p.m. on June 21 (see Figure 23), the project would add to existing shadows on Minna Street east of the project site. Project shadows would not reach the proposed open space at the second floor level on the site of 100 First Street office tower at this time.

September 21 (PDT)

At 10:00 a.m. on September 21 (see Figure 24), the project would add shadows along Second street northwest of the project site. The eastern sidewalk of Second Street would be covered by existing shadows at this time. Shadows would be added to an area on the north side of the intersection of the intersection of Second and Mission Streets. A portion of Anthony Street and its sidewalks immediately north of the proposed building would also be shaded.

At 12:00 noon on September 21 (see Figure 24), the proposed building would shade a section of Mission Street north of the project sit. Shadows would also be added to the northern sidewalk of Mission Street opposite the site and to the northeast of the site. A portion of Anthony Street and its sidewalks north of the proposed building would also be shaded.

At 3:00 p.m. on September 21 (see Figure 24), the project would add to existing shadows on the south side of Mission Street northeast of the project site. About 5% of proposed open space at the second floor level on the site of 100 First Street office tower would be newly shaded by the project at this time. At this time a total of about 30% of the open space would be shaded, with about 25% covered by existing shadows. About 70% of the space would be open to available sunlight.

December 21 (PST)

At 10:00 a.m. on December 21 (see Figure 25), the project would add shadows along Anthony Street and its sidewalks opposite the project site. The project would not add any new shadows along Mission Street at this time. The outline of the project shadow would theoretically extend across Market Street in the vicinity of Chevron Plaza at this time. However, Market Street and Chevron Plaza are covered by existing shadows at this time. Potential shadow impacts on Chevron Plaza are discussed in the Shadow on Open Space portion of this report (see below).

At 12:00 noon on December 21 (see Figure 25), the proposed building would shade a section of Mission Street north of the project site. Shadows would also be added to the northern sidewalk of Mission Street opposite the site and to the northeast of the site. A portion of Anthony Street directly opposite the site would also be shaded at this time.

At 3:00 p.m. on December 21 (see Figure 25), the project would add to existing shadows along Mission Street northeast of the project site. New shadows would extend as far as Beale Street at this time. About 6% of proposed open space at the second floor level on the site of 100 First Street office tower would be newly shaded by the project at this time (see Figure 26, page 82). A total of about 91% of the open space would be shaded at this time including about 85% of the open space which would be covered by existing shadows. About 9% of the space would be open to available sunlight.

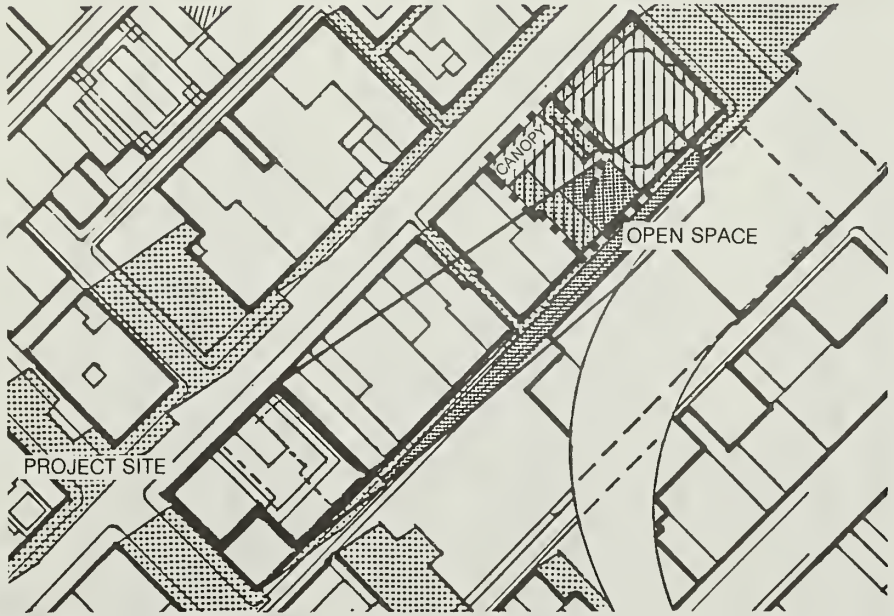
Shadow on Open Space

A number of parks and plazas situated along Market Street to the north and northeast of the project site represent the nearest publicly accessible open space in the vicinity of the project. These open spaces include Tishman Plaza, Crocker Plaza, Crown Zellerbach Plaza, Mechanics Plaza, Chevron Plaza, 100 First Street open space, 5 Fremont open space, and open space at the entrance to Golden Gate University on Mission Street.

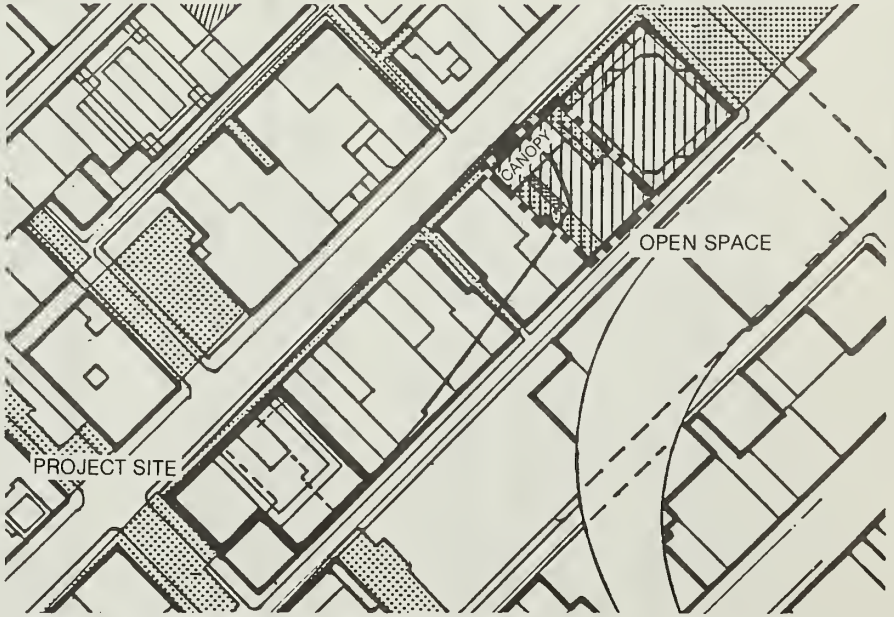
On March 21, June 21, and September 21 project-generated shadows would not reach Market Street after 10:00 a.m. in the day. Chevron (Standard Oil) Plaza and Tishman Plaza are the closest open spaces located on the south side of Market Street to the north of the project site. Project generated shadows would not be long enough to affect these open spaces on March 21, June 21, and September 21 (see Figures 22, 23, and 24, pages 76,

100 FIRST STREET OPEN SPACE (SECOND FLOOR LEVEL)

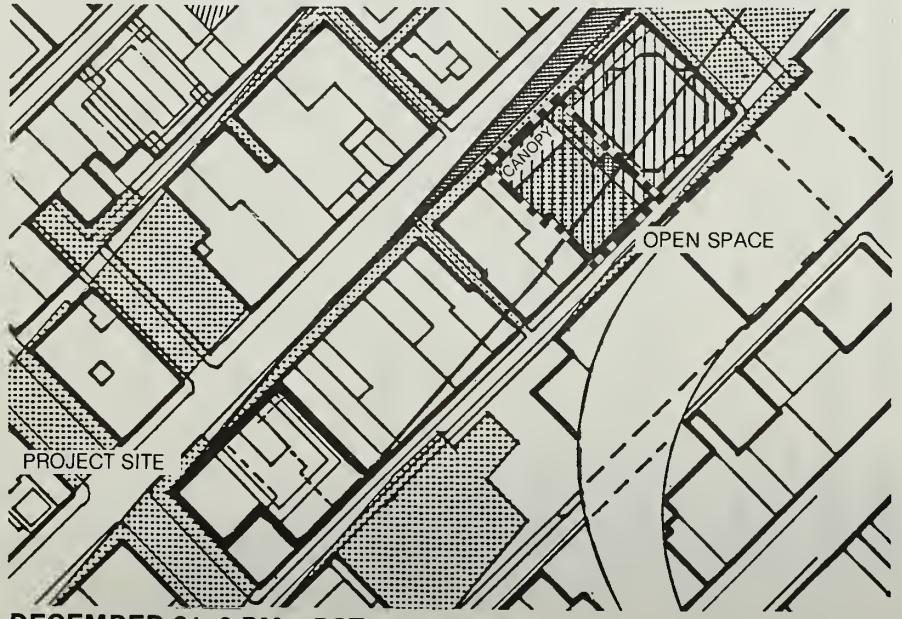
FIGURE 26



MARCH 21, 3 PM—PST



SEPTEMBER 21, 3 PM— PDT



DECEMBER 21, 3 PM—PST

LEGEND:

- EXISTING SHADOWS
- NEW SHADOWS
- SHADOW OUTLINE
- PROJECT SITE
- BUILDINGS UNDER CONSTRUCTION
- APPROVED FOR CONSTRUCTION

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SOURCE: EIP ASSOCIATES

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77, and 78). Project shadows would therefore not affect public open space from March through September during the hours of the day when public open space receives its heaviest use.

On December 21, project shadows would theoretically reach Market Street in the morning hours. However, existing buildings would prevent the project from adding new shadows to public open space. These spaces would include McKesson Plaza, Annie Alley, Crown Zellerbach Plaza, Mechanics Plaza. Open space on the south side of Market Street that would be covered by existing shadows at 10:00 am on December 21 would include Chevron Plaza, Tishman Plaza, and Metropolitan Plaza. In addition, open space in the project vicinity not affected by project shadows would include 425 Market Street Plaza, 333 Market Street Plaza, S.D. Bechtel Plaza, Bechtel Plaza, PG&E Plaza, and 201 Mission Street. Open space that potentially would be affected by project shadows are discussed below.

Chevron Plaza

New shadows would occur on Chevron Plaza from approximately 10:30 a.m. to 10:45 a.m. on December 21. A worse case condition would be a length of new shadow 10 feet wide by 50 feet long that would cover about 4% of the plaza area between these times, completely shading the open space as existing shadows would cover the remainder of the plaza at this time. On January 21 a similar length of new shadow would cover about 5.5% of the plaza for a ten minute period between 10:55 a.m. and 11:05 a.m. completely shading the open space as existing shadows would cover the remainder of the plaza at this time. On November 21 new shadows would cover about 5% of the plaza area between 10:25 a.m. and 10:35 a.m., completely shading the open space as existing shadows would cover the remainder of the plaza at this time. Project impacts on the plaza would cease on approximately February 15 and begin to reoccur on approximately November 15.

5 Fremont Center

Project shadows would extend to public open space at 5 Fremont Center on November 21 between approximately 1:15 p.m. and 1:45 p.m. However, project-generated shadows would fall within existing shadows on the plaza at this time. Similarly, project shadows would reach the plaza on January 21 between approximately 1:45 p.m. and 2:15 p.m. but would not add new shadows to the existing shadows on the plaza at this time. New shadows would begin to occur on the plaza on approximately November 24 and would

cease to have an impact on approximately January 18. Worse case impacts would occur in late December when, on December 21, new shadows would be added to the plaza from about 1:20 p.m. to about 1:40 p.m. New shadows at this time would cover approximately 9% of the open space area on a worse case basis at this time. Cumulatively, about 90% of the open space would be shaded with existing shadows covering about 80% of the plaza at this time. About 10% of the space would be open to available sunlight.

Golden Gate University Open Space

Project generated shadows would affect open space on the Mission Street frontage of the Golden Gate University in the early afternoon from approximately August 18 through the fall and winter months. These impacts would end on about April 24. On March 21 the project would add new shadows to existing shadows on the Mission Street frontage from about 12:20 p.m. to about 1:40 p.m. A worse case condition at about 1:10 p.m. would add new shadows to about 700 square feet or 70% of the west patio area, completely shading the open space as about 30% of this area would be covered by existing shadow at this time.

On February 21 the project would add new shadows to existing shadows covering the Mission Street frontage from approximately 12:20 p.m. to about 2:10 p.m. At about 1:30 p.m. new shadows would cover 55% of the west patio area. About 45% of this area would be covered by existing shadows at this time, completely shading the open space. On January 21 new shadows would appear on the Mission Street frontage at about 12:15 p.m. and would last until about 2:20 p.m. During this time new shadows would add to existing shadows on the University's open space and would cover about 50% of the west patio area at about 1:30 p.m. on a worse case basis, completely shading the open space as about 50% of this area would be covered by existing shadows at this time.

On December 21 project shadows would occur on the Mission Street frontage from about 12:10 p.m. to about 2:25 p.m. In this period about 60% of the western patio area would be covered by new shadows on a worse case basis at about 1:00 p.m, completely shading the open space as existing shadows would cover about 40% of this open space on the university site at this time. Shadow impacts from August through December would replicate those discussed for December through April.

Trans Bay Terminal Open Space

Project-generated impacts on the Trans Bay Terminal open space would occur along the northern strip of the open space adjacent to the Mission Street sidewalk. Project-generated shadows would impact this area for about a ten-minute period in the mid-afternoon from approximately October 16 to approximately February 26.

On December 21 project shadows would occur from about 3:17 p.m. to 3:27 p.m. in the open space area. They would be added to existing shadows on the area and would cover about 0.8% of the open space. A total of about 99% of the open space would be covered by shadows including about 98% generated by approved or existing projects at this time. On January 21 project shadows would occur between about 3:18 p.m. and 3:28 p.m. and would cover about 1.2% of the open space area. A total of about 98% of the open space would be covered by shadows including about 97% generated by approved or existing buildings at this time. On February 21 project shadows would occur between about 2:53 p.m. and 3:02 p.m. and would cover about 0.25% of the open space area. About 93% of the open space would be covered by shadows generated by approved or existing buildings at this time. About 7% of the open space would be open to available sunlight.

Shadow impacts in the period between October and December would approximately replicate those between December and February. Depending on the final design, if the project proposed for 535 Mission Street were constructed, project generated shadows on the Trans Bay Terminal open space could be further reduced or eliminated entirely.

Proposition K

In June, 1984, the voters of the City and County of San Francisco approved Proposition K, the Park Shadow Ban initiative ordinance prohibiting the issuance of building permits for structures that would shade property under the jurisdiction of or designated to be acquired by the Recreation and Park Commission, unless the Recreation and Park Commision and the City Planning Commission determine that such shade would have an insignificant adverse impact on the use of such property.

Union Square

Union Square is the closest Proposition K open space in the vicinity of the project site. Shadows generated by the project would not enter the square and therefore would not have an impact on the square at any time of the day or the year.

Early morning shadows generated by the project would be directed towards Union Square during late April. Shadows generated by the project one hour after sunrise would be closest to the square from April 15 to April 21. Figures illustrating the outline of the project shadow cast on ground at one hour after sunrise on April 12, April 16 April 18, April 20 and April 21 have been placed on file and are available for public review at the Department of City Planning, 450 McAllister Street, San Francisco, CA. At other times of the year the bearing angle of the sun one hour after sunrise would direct project shadows away from the square. Figure 27, page 87, illustrates the Shadow Fan for the proposed project and also shows that Union Square is outside the shadow fan zone of the project.

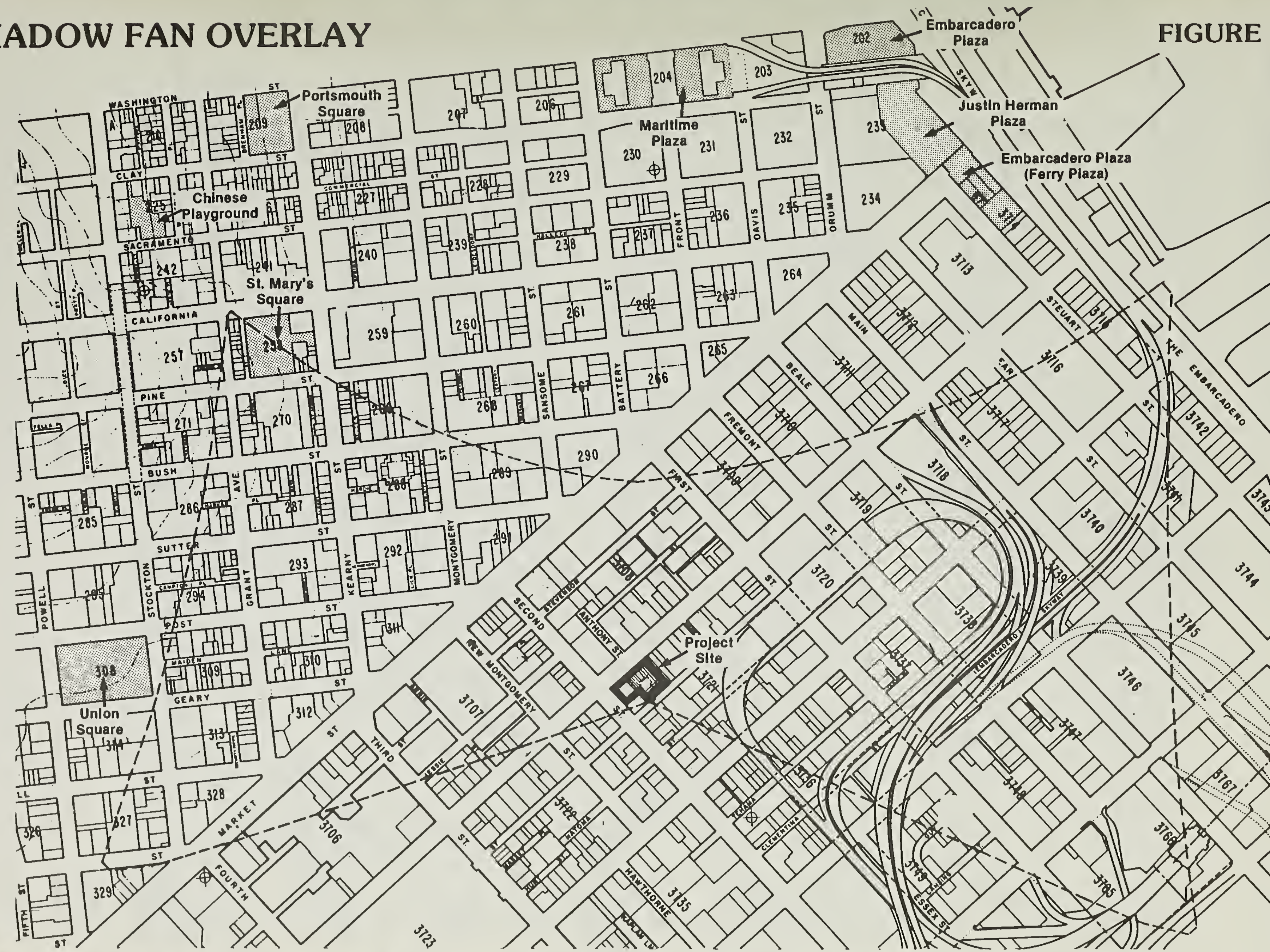
St. Mary's Square

Project-generated shadows would theoretically reach St. Mary's Square on December 21 one hour after sunrise. However, the topography of this area of the City and existing buildings standing between the project site and St. Mary's Square would prevent any new shadows from appearing on the square. These existing buildings would include 595 Market Street (430'), 44 Montgomery Street (560'), the Equitable Life Building (360'), the Russ Building (408'), 333 Bush (500'), and the Pacific Telephone and Telegraph Building (280'). These buildings would block project shadows from extending to St. Mary's Square.

Figures showing shadow diagrams for December 21 at 8:21 a.m. (one hour after sunrise) and 9:00 a.m. have been placed on file and are available for public review at the Department of City Planning, 450 McAllister Street, San Francisco, CA. On this time and date project generated shadows are longest when directed towards St. Mary's Square. However, project-generated shadows would be blocked from reaching the square by existing buildings. At other times of the year project shadows would be less extensive and would either fall short of the square or be blocked by existing structures.

SHADOW FAN OVERLAY

FIGURE 27



FEET 0 200 400 800

FURTHEST EXTENT OF SHADOW BETWEEN ONE HOUR ATER SUNRISE & ONE HOUR BEFORE SUNSET THROUGHOUT ENTIRE YEAR

PROPOSITION K OPEN SPACE

SOURCE EIP ASSOCIATES

85028

Other space in the vicinity of the project subject to Proposition K would include the Chinese Playground and Portsmouth Square. Project shadows would not reach these open spaces or any other Proposition K open space at any time of the year.

Downtown Plan

The Downtown Plan includes sun access criteria to allow direct sunlight to reach sidewalk areas of designated streets during critical hours of the day. In the case of sidewalks, the critical hours are considered to be the hours around noon.

The Downtown Plan also shows Second Street in the vicinity of the project site as part of a Conservation District in which the present scale of development, degree of sky exposure and amount of sunlight reaching the street are to be preserved. The proposed project would cast new shadows on Second Street, (portions of which would continue to be shadowed by existing buildings).

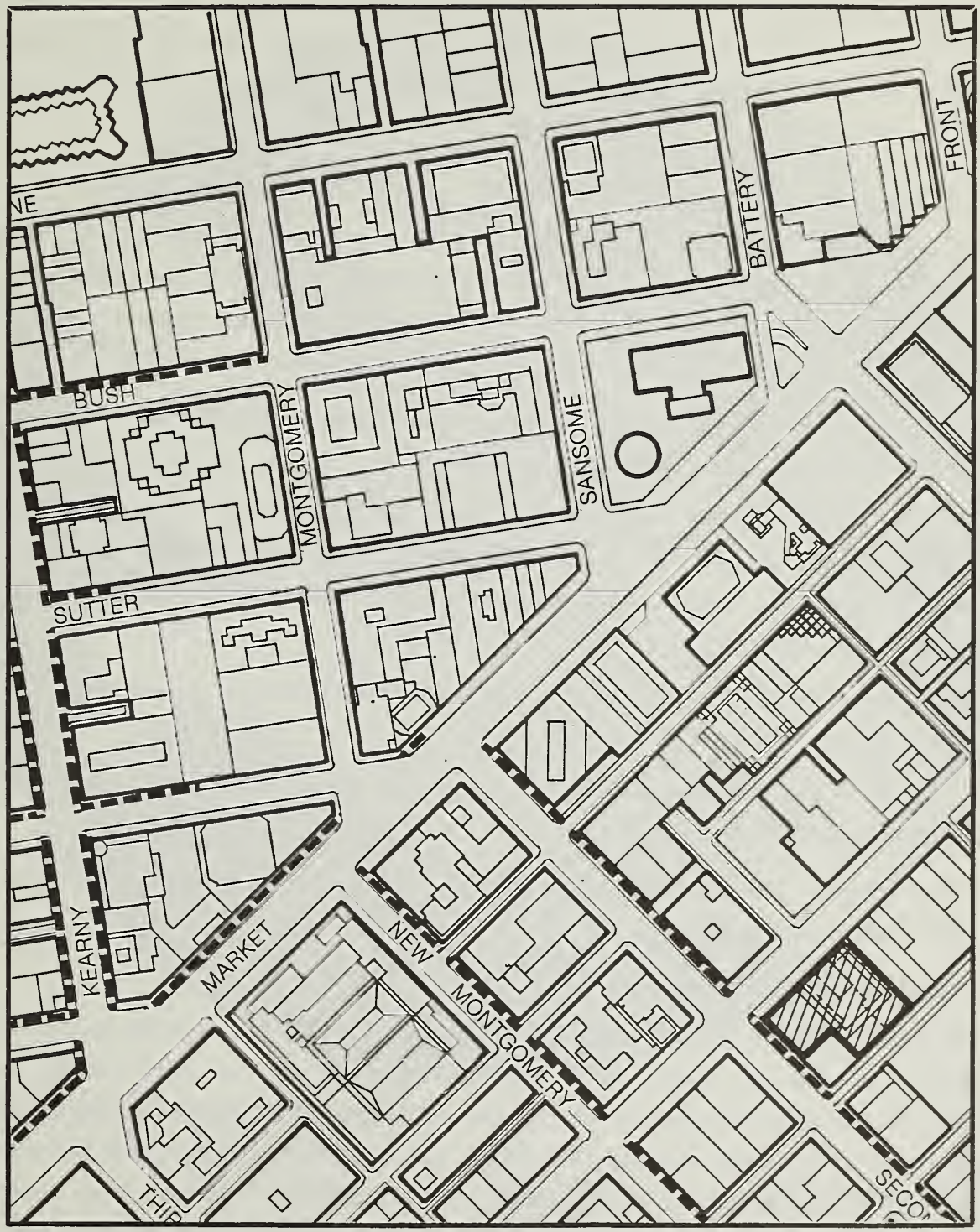
The Downtown Plan (October 1985) indicates sunlight access controls to public sidewalks in the C-3 District. Figure 28, page 89, illustrates streets on the project area affected by these controls.

The north side of Market Street has sunlight protection designated by a 50^{o} plane under which new buildings south of Market Street must remain. The proposed project lies approximately 600 feet from the north side of Market Street, measured from the edge of the curb. With a 50^{o} profile plane for Market Street the maximum height for a building on the project site could be 850 feet, 350 feet above the height limit. The height of the proposed project would be 457 feet, 393 feet below the maximum height required for sunlight protection.

On March 21 and on September 21 project shadows would not reach Second Street nor Market Street during the hours around noon. On March 21 project shadows would leave Second Street at approximately 10:10 a.m. PST. On September 21 would leave Second Street at approximately 10:50 a.m. PDT.

SUN ACCESS DIAGRAM

FIGURE 28



FEET 0 50 100 200

PROJECT SITE

SUNLIGHT PROTECTED SIDEWALKS

SOURCE: CITY & COUNTY OF SAN FRANCISCO
DOWNTOWN PLAN ORDINANCE EFFECTIVE OCTOBER 17, 1985

85028

On December 21 the bearing angle of the sun would be such that the project would not add any new shadows to Second Street during the hours around noon. On June 21 the project would cast a 150-foot length of shadow on Second Street from about 11:00 a.m. to 11:40 a.m. PDT. Project shadows would not reach Market Street during the hours around noon on this date.

Open Space Proposed as Part of the Project

The area designated as project open space would be at roof level on top of a three-story structure at the intersection of Second and Mission. Because of the orientation of the South of Market site project open space would be free of project shadows and exposed to available sunlight for most of the year during the hours around noon.

Depending on final design details project open space would be essentially free from project shadows at the following times.

On June 21 project shadows would cover about 75% of the project open space at 10:00 a.m. PDT. By midday in June the project open space would be free of project-generated shadows. Shadows from existing buildings would also not appear on the project open space at this time.

On September 21 the proposed project would not cast shadows on project open space after approximately 11:00 a.m. PDT.

On March 21 the proposed project would not cast shadows on project open space after approximately 10:10 a.m. PST.

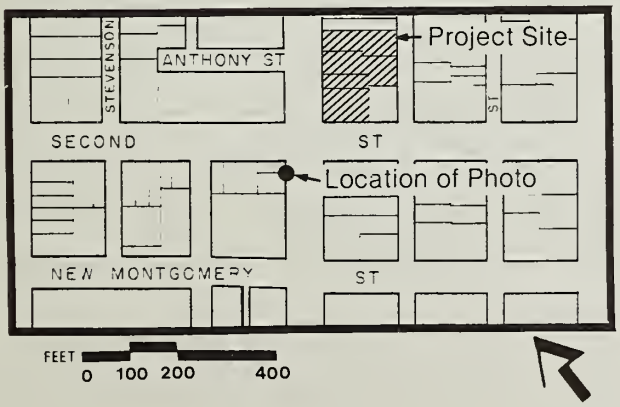
On December 21 the proposed project would not cast shadows on project open space after approximately 9:30 a.m. PST.

Skyplane Exposure Analysis

Analyses of sunlight duration were prepared for two locations near the project site (see Figures 29 and 30, pages 91 and 92). Diagrams of the sun's yearly path are superimposed on a fish-eye lens photograph of the sky. This technique accurately depicts the times of the year and day that direct sunlight reaches a location, but creates an exaggerated image due to the distortion inherent in using a fish-eye lens. Local solar time, similar to Pacific Standard time (PST), is used. During the time of year that Pacific Daylight Time (PDT) is in effect, the sun location would be comparable to about one hour earlier than shown on Figures 29 and 30. This technique differs from the shadow pattern analysis in that it predicts the duration of sunlight at a specific location, not the extent of the shadow.

SKYPLANE EXPOSURE FROM SOUTHWEST CORNER OF MISSION/SECOND INTERSECTION

FIGURE 29

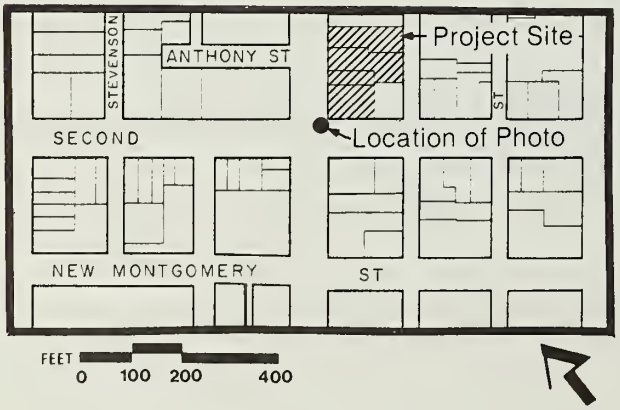


Sunlight Reduction Due to Project

SOURCE: DONALD BALLANTI, CERTIFIED CONSULTING METEOROLOGIST

SKYPLANE EXPOSURE FROM NORTHEAST CORNER OF MISSION/SECOND INTERSECTION

FIGURE 30



SOURCE DONALD BALLANTI, CERTIFIED CONSULTING METEOROLOGIST

Figure 29, page 91, shows a sky plane analysis for the project from the bus stop at the southwest corner of the Mission/Second intersection. This location currently receives sunlight from 7:00 a.m. to 2:00 p.m. in the spring and summer and from 10:30 a.m. to 2:30 p.m. in the fall and winter. The proposed project would eliminate direct sunlight to this site from about 7:00 a.m. to 8:00 a.m. in the spring and summer, and would have no effect during the remainder of the year. The project would allow direct sunlight to this location at noon all year.

Figure 30 shows a skyplane exposure at the northeastern corner of the Second/Mission intersection adjacent to the project site. The project would not reduce sunlight at this location at any time during the year.

2. WIND

Prevailing winds in San Francisco are from the northwest, west-northwest, west and west-southwest. Wind tunnel measurements were made at 23 surface locations near or within the project site for each of the prevailing wind directions using a scale model of the site, the project and vicinity. The study included separate tests of northwest, west-northwest, west and west-southwest winds under existing conditions (the approved 100 First Street, and 49 Stevenson Street projects were included in the existing scenario), and future conditions with the project in place.

Wind test data were combined with wind records to predict the wind speeds that would be exceeded 10% of the time at each test location. The predicted winds were then compared to the comfort and hazard criteria in the Planning Code, established in the Downtown Plan. (See Appendix B, p. A-32 for a summary of the full wind analysis.) Throughout the following discussion, the wind speeds reported refer to the equivalent wind speeds that would be exceeded 10% of the time.[2]

Existing wind speeds are four to 14 mph at the 18 sidewalk locations tested. (See Appendix B, Figure B-1, p. A-35, for a figure showing the locations of, and wind speeds at, the test points.)

Existing winds meet the 11 mph comfort criterion at ten of the 18 sidewalk locations. At eight locations, mainly along the east side of Second Street south of the Mission/Second intersection, and the south side of Mission adjacent to the site, existing winds exceed the 11 mph criterion. Speeds of 12 to 14 mph occur in this area. There are no existing nearby seating areas where the 7 mph comfort criterion would be applicable.

The project would cause wind speeds to increase at ten of the 18 sidewalk test locations, to remain the same at one location, and to decrease at seven locations. Winds within sidewalk areas would meet the 11 mph comfort criterion for pedestrian areas at seven of the 18 sidewalk measurement locations. The seven mph comfort criterion for sitting areas would be met at three of five measurement points within the rooftop plaza. Of the eight locations currently exceeding the 11 mph criterion, one (location 2, at the Second/Minna intersection across from the proposed project site) would experience a reduction of winds to below the 11 mph criterion. Three locations currently meeting the 11 mph criterion would have winds increased to above the 11 mph criterion to a high of between 13 and 14 mph (locations 8, 9, and 14). Five locations where existing winds exceed the 11 mph criterion would have winds increased to a high between 13 and 17 mph (locations 3, 15, 21, 22 and 23). One location (location 1) would have winds unchanged, and three (locations 4, 5 and 7) would experience a wind reduction of one mph but would still remain above the 11 mph criterion.

The pedestrian hazard criterion (hourly averaged winds of 26 mph or greater no more than one hour per year) would not be exceeded at any measurement location.

A number of alternative designs were tested for their relative impacts on wind acceleration. Design modification included a shorter tower, a larger corner building and a more slender tower with extensive setbacks in the base. In all cases, the result was violation of the comfort criterion for pedestrians at from 12 to 14 measurement points. There was no significant difference in the wind accelerations caused by the different design alternatives (see Section VII, page 137 and Appendix B, page A-32).[3]

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[1]This section is based on a study entitled "Wind Tunnel Analysis for the Proposed Second and Mission Project", April, 1986, prepared by Don Ballanti, Certified Consulting Meteorologist. A summary of the report in included in Appendix B, p. A-32; the complete report is on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St.

[2]Equivalent windspeed is an hourly wind speed adjusted to incorporate the effects of gustiness or turbulence on pedestrians.

[3]Donald Ballanti, Certified Consulting Meteorologist, Letter to Brian Boxer, June 16, 1986.

E. TRANSPORTATION

The analysis below includes a brief summary (summaries) of the materials in the Downtown Plan EIR. This summarized material is incorporated by reference as follows:

VOLUME 1: FINAL EIR TEXT

I. SUMMARY. E. Transportation and Circulation; Travel Demand, Public Transportation, Traffic, Parking, Pedestrian Circulation, Mitigation (pp. I.E.1-I.E.6).

IV. ENVIRONMENTAL SETTING AND IMPACTS OF THE DOWNTOWN PLAN. E. Transportation and Circulation; Introduction (pp. IV.E.1-IV.E.3); Setting (pp. IV.E.3-IV.E.20): Travel Demand Analysis, Transit, Traffic, Parking, Pedestrian Circulation; Impacts (pp. IV.E.20-IV.E.47): Travel Demand Analysis - 1990 Impacts, 2000 Impacts; Transit - 1990 Impacts, 2000 Impacts; Traffic - 1990 Impacts, 2000 Impacts; Parking -1990 Impacts, 2000 Impacts; Pedestrian Circulation - 1990 Impacts, 2000 Impacts; Parking - 1990 Impacts, 2000 Impacts.

V. MITIGATION OF ENVIRONMENTAL IMPACTS (pp. V.E.1-V.E.30). E. Transportation and Circulation: Annual Growth Limits, Measures Proposed as Part of the Downtown Plan VI. ALTERNATIVES (pp. VII.E.1-VII.E.4). E. Transportation and Circulation: Travel Demand, Public Transportation, Traffic, Parking, Pedestrian Circulation

VOLUME 2: APPENDICES (pp. J.1-J.38). J. Transportation and Circulation Analyses and Methodologies: Introduction, C-3 District Employer/Employee Survey Travel Demand Analysis, Future Transit Capacities, Services Vehicles, Pedestrian Circulation

VOLUME 3: SUMMARY OF COMMENTS AND RESPONSES (pp. C&R 1-Z.4). Part 1: The Downtown Plan EIR (Final EIR, EE81.3, certified October 18, 1984) is available for review at the Department of City Planning, the San Francisco Main Public Library, and various branch libraries.

1. PROJECT TRAVEL DEMAND

On the basis of land use, the project would generate about 4,582 net new person trip-ends (pte) per day.[1,2] Travel generated by existing office and retail uses on the project site has been subtracted from the site to give the net new travel from the project. (Table 6, page 97, shows calculations for project trip generation.) The trip generation calculations include travel to and from the project site by both visitors and employees of the project. Additionally, although expressed on a person trip-end basis, the trip generation includes all travel to and from the project in autos, service vehicles and trucks, on public transit and other modes (i.e. walking, bicycles, taxis, etc.). Projected outbound (peak commute direction) p.m. peak-period and peak-hour trips by mode expected to be generated by the project are shown in Table 7, page 98. About 860 new outbound trips from the project would occur in the p.m. peak period, of which about 540 would occur in the p.m. peak hour.

Modal assignments have been made on the basis of future modal splits for the years 1984 and 2000 as contained in the EIR for The Downtown Plan (EE81.3).[3] The future modal splits have been applied to the project travel for the purpose of comparing project travel with future travel demand on the transportation system serving San Francisco. The 1984 mode split has been used for the purpose of identifying impacts at the project specific level while the year 2000 mode splits are used for the purpose of comparison of the project to cumulative downtown growth in future years. The modal splits used were derived from aggregate data for the C-3 District, the zoning district that contains the project site, and thus represent an average condition. The actual modal split for travel from the project may vary from the C-3 District average. However, because the travel demand forecasts used to derive the average modal split data include the travel from the project, application of the average modal split data to project travel appears to be sufficiently accurate for purposes of comparison.

2. MASTER PLAN POLICIES

The project would relate to several objectives and policies of the Transportation Element of the San Francisco Master Plan.[4] The project would respond to Objective 1, Policy 7, to "seek means to reduce peak travel demand." As required by Section 163 of the City

TABLE 6

NET NEW PROJECT PERSON TRIP GENERATION

Land Use		Daily Trip Rate	Daily Trips	Peak Period Trips (1 hr/2 hr)	
				Total	Outbound
363,355	gross sq ft office area	18.1/1,000[1,2]	6,577	677/1,085	644/1,031
-13,300	gross sq ft retail area	150/1,000[2,3]	-1,995	-200/-329	-104/-171
		TOTALS	4,582	478/756	540/860

6,577	daily office trips	=	2,631	work trips[4]	+	3,946	non-work trips
-1,995	daily retail trips	=	80	work trips[4]	+	-1,915	non-work trips
	TOALS		2,551	work trips		2,031	non-work trips

[1] San Francisco Department of City Planning, Guidelines for Environmental Review, September 1983.

[2] Caltrans, Eleventh Progress Report on Trip Ends Generation, pages 167, 168, 171 and 174, July 1976.

[3] Institute of Transportation Engineers, Trip Generation, 1979, not paginated.

[4] Based on the Downtown Plan EIR.

TABLE 7

DISTRIBUTION OF NET NEW PROJECT PERSON TRIPS
OUTBOUND DURING PM PEAK--PERIOD

Location and Mode	Peak-Hour (4:30-5:30) 1984	Peak-Hour (4:30-5:30) 2000	Peak-Period (4:00-6:00) 1984	Peak-Period (4:00-6:00) 2000
San Francisco				
Drive Alone	79	73	119	113
Carpool	31	31	51	51
Vanpool	--	--	2	2
Muni				
NE	11	11	30	30
NW	61	64	102	104
SW	53	56	105	108
SE	9	9	21	22
BART	16	16	31	31
Walk	-21	-21	-27	-27
Other	5	5	11	11
Total	245	245	444	444
East Bay				
Drive Alone	5	3	8	6
Carpool	31	30	39	33
Vanpool	10	10	12	11
BART	70	82	104	124
AC	39	29	60	49
Other	1	1	2	2
Total	156	156	224	224
Peninsula				
Drive Alone	13	9	20	17
Carpool	32	31	43	43
Vanpool	--	--	1	1
MUNI	1	1	6	6
BART	18	18	20	21
Samtrans	9	11	15	16
Caltrain	12	14	17	17
Other	1	1	1	1
Total	85	85	122	122
North Bay				
Drive Alone	10	7	11	8
Carpool	9	10	10	10
Vanpool	1	1	2	2
GGT Bus	24	26	36	39
GGT Ferry	5	6	7	7
Other	4	4	4	4
Total	53	53	69	69
TOTAL	540	540	860	860

[1] Numbers may not total due to rounding.
Source: Department of City Planning, Office of Environmental Review (OER), EIR for the Downtown Plan, EE81.3, certified October 18, 1984 on file at OER.

Planning Code, a member of the building management staff would be designated as a "transportation broker" to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak-period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART, Muni, and other carrier's passes to employees; and encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area Commuters by providing a central clearinghouse for carpool and vanpool information.

Objective 1, Policy 2 of the Downtown Transportation Plan in the Transportation Element of the Master Plan encourages the provision of "needed additional short-term facilities in peripheral locations around but not within the downtown core, adjacent to major thoroughfares,..." The project is located in the Downtown Core - Automobile Control Area. The project would include 91 short-term parking spaces. Objective 1, Policy 8 of the Downtown Transporation Plan in the Transportation Element of the Master Plan states that "within this compact area priority must be given to business clients, shoppers and visitors and the movement of goods. A continuing effort should be made to improve pedestrian, transit and service vehicle access and circulation, and these functions must have priority in the use of the limited street and parking space." The proposed project would include a 91-space basement parking garage which would be designed for use by short-term parkers. The parking garage, and off-street freight loading spaces, would be accessed from Minna Street instead of from Mission and Second Streets. Automobiles and service vehicles exiting the project would enter Second Street from Minna Street causing disruption of pedestrian traffic along Second Street using the Minna Street crosswalk (see Table 9, page 108 for pedestrian flow rates and levels of service).

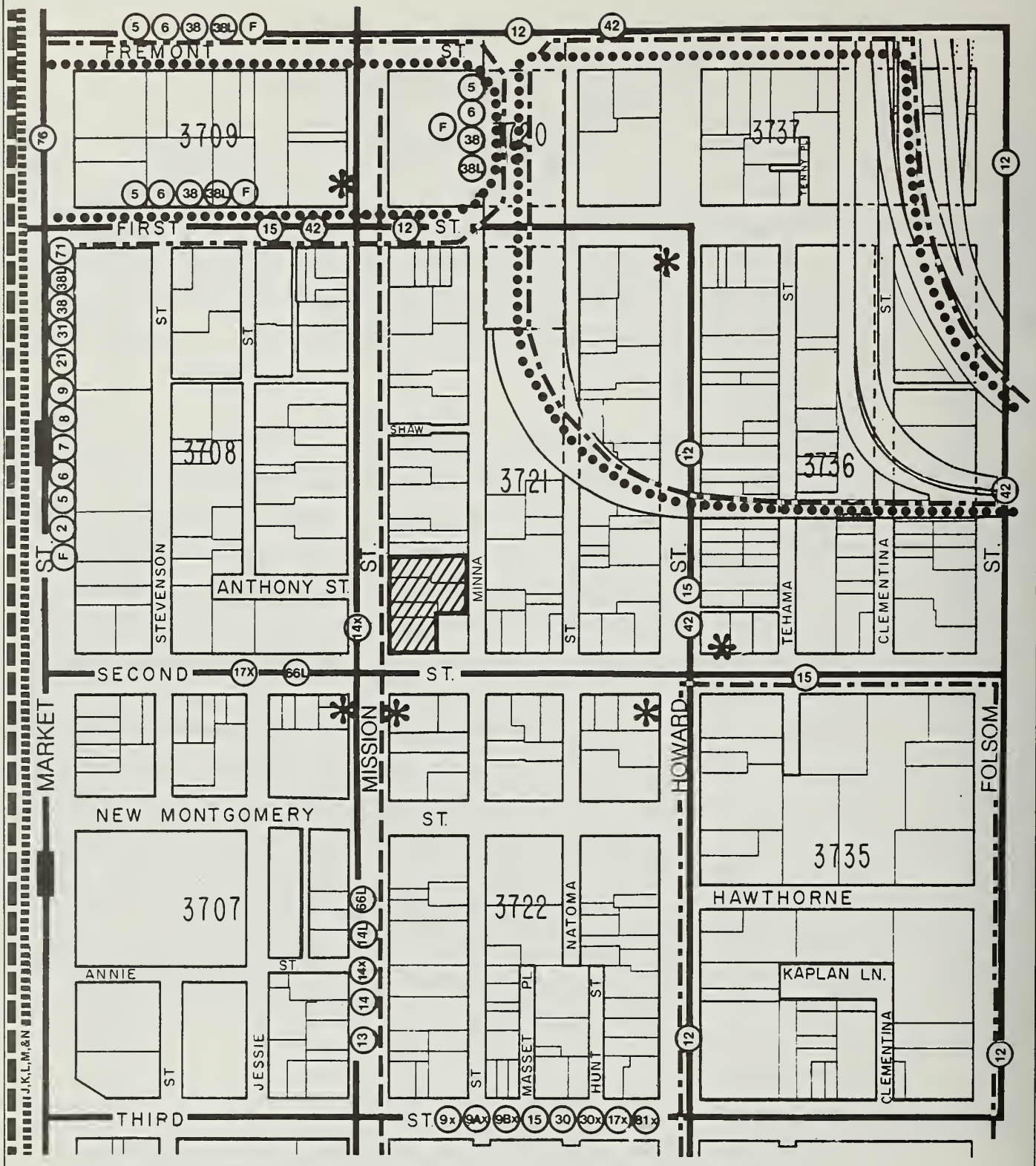
3. TRANSIT

a. Local Transit

The location of the project site on Mission Street at Second, close to the Transbay Terminal, provides access to at least 18 Muni routes within two blocks of the project. Muni Metro and BART service in the Market Street subway are accessed via the Montgomery and Embarcadero stations. Figure 31, page 100, shows the routes of the Muni, BART and the other regional carriers, in the project area. Photographic examples of p.m. peak-hour loadings on Muni vehicles are shown in Appendix B.

TRANSIT SYSTEM

FIGURE 31



SOURCE: 1986 SAN FRANCISCO STREET AND TRANSIT MAP

Muni operations in the four corridors of San Francisco are currently in Level of Service D and E and BART is operating currently at Level of Service F Eastbay and in Level of Service D in the Westbay. Table C-1, Appendix C, page A-36, contains descriptions of the various Levels of Service for bus transit. In the p.m. peak hour, the project would generate about 134 new Muni trips and about 104 new BART trips outbound from the project site. Addition of the project p.m. peak hour Muni riders to the existing (1984) Muni ridership would increase loading ratios on Muni in the northwest and southwest corridors to 1.27 and 1.46 respectively, but would not change the Levels of Service. Loading ratios in the northeast and southeast corridors would remain at 1.16 and 1.06 respectively. Addition of the BART riders from the project to the existing BART ridership would increase the p.m. peak hour Eastbay loading ratio to 1.54 (Level of Service would remain F); the project's BART riders would change the Westbay loading ratio to 1.12 but would not change the Level of Service.

b. Transit Corridor Analysis

The project would contribute to increases in transit ridership in the major transit corridors leading from downtown San Francisco. Existing peak-period and peak-hour transit ridership would be increased by 0.1% to 0.7%, with the greatest increases from the project riders occurring in the Muni northwest corridor. Ridership increases of this magnitude would not be measurable against the day-to-day fluctuations in transit ridership and would not have a noticeable effect on transit levels of service.

c. Project Transit Costs

Cost increases due to increased patronage would be expected for Muni, SamTrans, BART and Golden Gate Transit. The City's general fund provides for a subsidy to the Municipal Railway's operating budget. The subsidy covers the difference between Muni's costs and the revenues that Muni receives from fares and from federal and state governments and represents the cost of Muni to the City. This subsidy amounted to about 10% of the total General Fund revenues in the 1984-1985 budget. The net marginal cost (or increase in the deficit for Muni operations) per peak-hour ride was $0.50 in 1984. The proposed project would generate about 130,032 annual peak-period outbound trips which could generate an annual cost to Muni of approximately $65,016.[5] The extent to which this marginal cost increase would be met by the general fund allocation to Muni is not known. State and

federal funds to Muni are decreasing and the City is reviewing other options for increased revenues.

Muni. The sponsor would be required to pay a one-time Transit Development Impact Fee to finance the increased cost of Muni services necessitated by the project, at the rate of $5 per gross square foot of net new office construction. Based on the $5 rate, the project would yield about $1,816,775.[6]

BART. For the year ending June 30, 1985, the average net operating deficit per passenger trip for BART was about $1.20[7] On the basis of about 183,204 riders per year in the year 2000, the estimated annual BART deficit attributable to the project would be about $219,845, assuming that the cost per ride deficit remains the same.[8] The project would generate a total of about 30,391 in revenues to BART, including about $25,342 in property tax revenues, and about $5,049 from the 75% of the 0.5% transit sales tax allocated to BART. This amount does not include the remaining 25% of the 0.5% BART sales tax revenue distributed by MTC among BART, Muni and AC Transit. After subtraction of BART's revenues from sales and property taxes that would be generated by the project the net operating deficit of BART due to the project would be about $189,454. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future.

4. TRAFFIC

a. Local Traffic Analysis

Local traffic impacts have been assessed for the intersections of Fourth/Harrison, First/Harrison, Second/Mission, and Second/Howard. Second/Mission currently operates at Level of Service "C", with the exception of the northbound right-turn from Second Street onto Mission Street. The right-hand turn is relatively heavy and must cross heavy pedestrian flows in the Second Street and Mission Street crosswalks. The right-turn movement operates at LOS "D" with significant delay. The Second/Howard intersection currently operates at LOS "A" with minimal delays. Pedestrian volumes in the Howard Street crosswalks can delay turns on and off Howard, thus these turning movements generally operate at LOS "C." At the Fourth/Harrison intersection overall flows are stable and the intersection generally operates at LOS "*C." Pedestrian flows are

light and have little effect on vehicle flows. The heaviest traffic volumes are on the Fourth Street approach, particularly those lanes which turn onto the I-80 freeway on-ramp. Backups from the I-80 on ramp occur and affect the Fourth Street approach. At such times, the two right lanes on Fourth Street queue at LOS "E/F."[9]

The proposed project would generate 212 p.m. peak-period outbound trips and 145 p.m. peak-hour outbound trips. Traffic impacts were evaluated for the project's worst case situation, which would be full build out.

Vehicles leaving the project site would most likely travel through either the Second/Mission or Second/Howard intersections. The Second/Howard intersection now operates at Level of Service "A," while the Second/Mission intersection operates at Level of Service "C." If one-half of the 155 p.m. peak hour vehicles traveled through each intersection, traffic volumes would increase by 3% at Second/Mission and 3% at Second/Howard. Traffic increases of this magnitude would be within natural daily fluctuations. Addition of this amount of traffic from the project would cause no change at the Second/Mission and Second/Howard intersections.

The localized aspects of cumulative development on street and intersections immediately adjacent to the project site were prepared using underlying traffic growth factors representing "worst case" scenario. It is estimated that in the City's South of Market area east of Sixth Street, traffic volumes will grow 8% by the year 1990 and 19% by the year 2000.[10] These growth factors include traffic generated by the proposed project plus traffic generated by cumulative development in the surrounding area. Table 8, page 104, shows the Levels of Service (LOS) and volume-to-capacity ratios at the intersections analyzed in the site vicinity as they currently exist, and as estimated in 1990 and the year 2000 (including the project).

b. Freeway On-Ramp Analysis

Traffic operations at the intersections serving freeway on-ramps near the project site (First/Harrison and Fourth/Harrison) are shown in Table 8. During the peak hour, the intersection of Fourth and Harrison operates at Level of Service "A/B" but is frequently affected by freeway congestion on the James Lick Freeway which sometimes

TABLE 8

EXISTING AND PROJECTED INTERSECTION PERFORMANCE

Intersection	Existing[1]		Existing + Project		Year 2000	
Second/Mission[1]	.71	C[2]	.72	C	.84	D[2]
Second/Howard[1]	.53	A[3]	.53	A	.63	B[3]
Harrison/First	1.10	E/F	1.10	E/F	1.30	F
Harrison/Fourth[1]	.72	C[4]	.73	C	.86	D[4]
	--	B[5]			--	D[5]

[1]Counts conducted by EIP Associates, Tuesday, February 11, 1986, 4:30-5:30 p.m. Additional counts conducted by EIP Associates on Tuesday, April 29, 1986, 4:30-5:30 p.m. (2nd/Mission), Thursday, May 1, 1986 4:30-5:30 p.m. (2nd/Howard), Thursday, May 8, 1986 4:30-5:30 p.m. (4th/Harrison), Tuesday, September 30, 1986 4:30-5:30 p.m. (4th/Harrison), Wednesday, October 1, 1986 4:30-5:30 p.m. (2nd/Howard), and Thursday, October 2, 1986 4:30-5:30 p.m. (2nd/Mission). Field observations by George W. Nickelson of Omni-Means, Ltd. were conducted on Tuesday, June 3, 1986, and Tuesday, September 30, 1986.

[2]The right-turn movement from Second Street onto Mission Street operates at LOS "D". This condition would continue in the future.

[3]Turning movements on and off Howard operate at LOS "C." This condition would continue in the future.

[4]The two right lanes on Fourth Street operate at LOS "E/F." This condition would continue in the future.

[5]"Mission Bay Special Studies: Transportation Network" prepared by DKS Associates for the Department of City Planning, September 1986, Table 6, page 34. This study includes levels of service (LOS) for this intersection. The differences between the DKS and EIP existing LOS are due to traffic conditions on days when traffic was counted and to different traffic assumptions used by the traffic consultants. Future LOS are projected to be the same due to the different traffic assumptions and to different assumptions regarding buildout of the Mission Bay project. The EIP analysis assumed only a portion of Mission Bay would be constructed by 2000, while the DKS analysis assumed full buildout by 2000. It is acknowledged in the DKS report that Mission Bay would not be completely built and absorbed by 2000; the full buildout figures were used for planning purposes.

backs onto surface streets during the p.m. peak hour. During these periods the intersection has operating characteristics similar to "E/F" conditions. The worst traffic condition among the intersections analyzed exists at First and Harrison which currently operates at Level of Service "F". This results in traffic congestion on First and Harrison Streets extending several blocks in the peak hour. Vehicles at this intersection experience excessive delays and queues that extend as far back as Folsom. Operations at Levels of Service E and F represent unacceptable delay to motorists and queues of vehicles are present during the p.m. peak hour on the approaches to the freeway on-ramps. Vehicles from the project would be expected to contribute to the existing jammed conditions at these intersections although the project effects would not be sufficient to change either the V/C ratio or level of service during the p.m. peak hour.

c. Freeway Corridor Analysis

The project would contribute to increases in traffic on the major freeways serving downtown San Francisco. Traffic generated by the project would increase total traffic on major freeways during the p.m. peak period by about 0.1% and the p.m. peak hour by about 0.1% to 0.2%. Such increases would not be measurable against the day-to-day fluctuations in traffic volumes. Because the Bay Bridge eastbound traffic flow is functionally at capacity, the travel demand from the project would not be expected to increase the flows on the Bay Bridge in the peak hour; rather the East Bay-bound auto traffic from the project would most likely compete with and possibly displace existing users of the Bay Bridge into later portions of the peak period. This competition for access would occur at the on-ramps to the Bay Bridge and any displacement of existing users to later time periods would depend upon the time of arrival of project vehicles at the on-ramps.

5. PARKING

The project's net new parking demand has been calculated on the basis of trip generation and modal split data.[2,3] Based upon the project's travel patterns, net new parking demand would be calculated as follows:

- 2,551 daily work trips (office and retail) x 22% auto/1.6 persons per auto/2 one-way trips per auto = 175 long-term parking spaces.

- 2,031 daily non-work trips (office and retail) x 10% auto/1.3 persons per auto/2 one-way trips per auto/5.5 turnovers daily 12 = 14 short-term parking spaces

- Total net new project demand = 189

The project would provide 91 spaces in a two-level basement garage leaving an excess demand of 98 spaces. Occupancy in public off-street parking lots and garages would be expected to increase from the existing 87% to 89% with the proposed project.

The proposed project is in the C-3 District which does not require off-street parking for commercial uses. The Code allows accessory parking up to seven percent of the gross floor area of the project. The project would require Conditional Use authorization by the City Planning Commission to allow 32,877 gsf of parking space, 450 gsf in excess of the 32,428 gsf allowed as an accessory use.

6. FREIGHT LOADING

The project's freight loading needs have been calculated according to the City Planning Code.[11] The project's freight loading requirement would be:

- 454,918 gsf office space @ 0.1 space/10,000 gsf = 5 spaces

- 7,350 gsf retail and restaurant space = 0 spaces

- Total = 5 spaces

Five loading docks would be required. The project would include four full size freight loading docks and two van delivery spaces as allowed by Section 153(a) of the City Planning Code.

7. PEDESTRIAN FLOWS

The main pedestrian entrances to the existing buildings are located along Mission Street and at the Mission/Second corner. The main entrances to the tower portion of the proposed project would be on Mission Street and the entrance to the corner building would be from the Mission/Second corner.

Pedestrian volumes were recorded on Mission and Second Street sidewalks at the main entrances to the site; on Minna Street behind the site; on the crosswalks immediately adjacent to the site crossing Mission and Second Streets and crossing Minna Street at the Second Street sidewalk. Existing noon peak-hour pedestrian flows are in the Unimpeded range with the exception of the Minna Street sidewalk, which is in the Open range. (See Table C-2, Appendix C, page A-40, for an explanation of pedestrian flow rates and levels of service.) Addition of project travel would increase pedestrian flows on all sidewalks and crosswalks adjacent to the project site. Pedestrian flow regimes would not change, with the exception of the Minna Street crosswalk which would degrade from Open to Unimpeded conditions. Table 9, page 108, shows the existing pedestrian flow conditions and existing plus project flows at each location. The complete listing of flow rates is shown in Table 9.

8. CONSTRUCTION ACTIVITY

During the construction period, transportation impacts would result from truck movements to and from the site during demolition, excavation and construction activity. Trucks would use Second Street to reach the freeway and would haul debris and excavation materials to a disposal site in South San Francisco. Deliveries of materials would occur between 9:00 a.m. and 3:30 p.m. The phasing of project construction would be as follows; excavation -- 7 weeks; foundation -- 10 weeks; erection -- 38 weeks; exterior finishing -- 38 weeks.

During the construction period, the sidewalks fronting the project site on Mission, Second and Minna Streets would be affected, although they would not be closed. Lane and sidewalk closures are subject to review and approval by the Department of Public Works.

Temporary parking demand from construction workers' vehicles, and impacts on local intersections from construction worker traffic, would occur in proportion to the number of construction workers who use automobiles.

Construction truck access to the site could be from Mission, Second or Minna Streets. The impact of construction truck traffic would be slight lessening of the capacities of access streets and haul routes because of the slower movements and larger turning radii

TABLE 9

PEDESTRIAN FLOW RATES AND LEVELS OF SERVICE (LOS)
IN THE PROJECT VICINITY

NOON PEAK-HOUR

Location	Existing		Existing + Project	
	Flow Rate	LOS	Flow Rate	LOS
Second St. Sidewalk	1.05	Unimpeded	1.25	Unimpeded
Mission St. Sidewalk	1.08	Unimpeded	1.35	Unimpeded
Minna St. Sidewalk	.23	Open	.45	Open
Second St. Crosswalk	1.02	Unimpeded	1.22	Unimpeded
Mission St. Crosswalk	1.30	Unimpeded	1.55	Unimpeded
Minna St. Crosswalk	.79	Unimpeded	.99	Unimpeded
P.M. PEAK-HOUR				
Second St. Sidewalk	.88	Unimpeded	1.02	Unimpeded
Mission St. Sidewalk	.51	Unimpeded	.69	Unimpeded
Minna St. Sidewalk	.24	Open	.39	Open
Second St. Crosswalk	.79	Unimpeded	.93	Unimpeded
Mission St. Crosswalk	.90	Unimpeded	1.07	Unimpeded
Minna St. Crosswalk	.41	Open	.54	Unimpeded

of trucks. Muni runs along both sides of the project block; there are no stops along the project frontage. Lane blockage on Mission by queued trucks, if it were to occur, would reduce the capacity of this street and would interfere with the operation of the diamond transit lane. Blockage during times of peak traffic flow would have greater potential to create conflicts than during non-peak hours because of the greater peak hour numbers of vehicles in adjacent lanes and vehicles (autos and buses) that would have to maneuver around the queued trucks. Construction is occurring at the southwest corner of First and Mission Street (100 First Street). Other projects in and near the project block include 535 Mission, 524 Howard, No. 1 Second, 201 Second and 299 Second. In the event of combined construction of the proposed project and one or more of these other projects, there would be greater potential for increased traffic congestion and transit delay.

9. TRANSPORTATION MANAGEMENT

To help achieve long term transportation goals, the project sponsor would initiate a comprehensive transportation system management (TSM) program aimed at reducing the peak hour effects of project travel pursuant to Section 163 of the City Planning Code. This program would continue for the actual lifetime of the project. The project sponsor would execute an agreement with the Department of City Planning for the provision of on-site transportation brokerage services and the preparation of a transportation management program to be approved by the Director of Planning and implemented by the provider of transportation brokerage services. The project sponsor would:

- Designate a permanent Transportation Coordinator as part of the building management staff.
- Encourage the investigation and implementation of flex-time programs by providing information on the program's advantages, feasibility, etc.
- Develop a parking program giving priority to ride-sharing vehicles.
- Sell Muni Fast Passes and other monthly commute passes on-site.
- Make transit routes and schedule information available to employees.
- Develop and maintain carpool and vanpool matching services.

[1]San Francisco Department of City Planning, Guidelines for Environmental Review: Transportation Impacts, September 1983.

[2]Caltrans, Tenth Progress Report on Trip Ends Generation, July 1975.

[3]San Francisco Department of City Planning, Office of Environmental Review, Final Environmental Impact Report for The Downtown Plan, EE81.3, certified October 18, 1984. This document is an analysis of projected growth in the C-3 District to the year 2000 under the Downtown Plan and five alternatives. The transportation analysis in the EIR includes projections of future modal splits for work and other (non-work) travel for the p.m. peak period, p.m. peak hour and daily time periods. This three-volume document is on file and available for public review at the Department of City Planning, 450 McAllister Street.

[4]San Francisco Department of City Planning, January 1983, Transportation, An Element of the Master Plan.

[5]According to Bruce Bernhard, Muni Chef Accountant, telephone conversations, October 11, 1984.

The deficit due to the project would be 516 peak-period Muni trips per day x 252 working days per year x $0.50 deficit per ride = $65,016.

[6]363,355 gsf of net new office x $5 = $1,816,755.

[7]Ward Belding, Supervisor, Office of Research, BART, telephone conversation, September 27, 1985. The $1.20 average deficit per trip is based on all operation costs and revenues for the entire system and is not specific to San Francisco trips. Available data from BART do not enable peak- and non-peak-period costs to be differentiated.

[8]The deficit due to the project would be 727 daily BART trips generated by the project x 252 working days per year x $1.20 deficit per rider = $219,845.

[9]George W. Nickelson, Traffic Engineer, Omni-Means, Ltd., Engineers and Planners, letter to Don Dean, EIP Associates, June 10, 1986.

[10]Underlying growth factors for the area south of Market Street and east of Sixth Street, were derived from background reports for the Downtown Plan EIR and assume a lower degree of mitigation for Downtown Plan goals. Achievement of Downtown Plan goals would greatly reduce these impacts.

[11]City and County of San Francisco, Downtown Plan, effective October 17, 1985.

F. AIR QUALITY

The analysis below includes a brief summary (summaries) of the material in the Downtown Plan EIR. This summarized material is incorporated by reference as follows:

VOLUME 1: FINAL EIR TEXT

I. SUMMARY (pp. I.I.1-I.I.31). I. Air Quality; Short-term Construction Impacts, Long-term Operation Impacts: Pollutant Emissions, Ozone Concentrations, Carbon Monoxide Concentrations, Total Suspended Particulate Concentrations, Nitrogen Dioxide Concentrations, Sulfur Dioxide Concentrations

IV. ENVIRONMENTAL SETTING AND IMPACTS OF THE DOWNTOWN PLAN. I. Air Quality; Setting (pp. IV.I.1-IV.I.9): Introduction, Existing Regional and Local Air Quality: Ozone, Carbon Monoxide, Total Suspended Particulates, Nitrogen Oxides, Sulphur Dioxide; Air Quality Planning and Forecasting: Ozone Modeling for the 1982 Bay Area Air Quality Plan, Carbon Monoxide for the 1982 Bay Area Air Quality Plan, Carbon Monoxide Modeling for Downtown San Francisco, Other Pollutants. Impacts (pp. IV.I.9-IV.I.19): Short-term Construction Impacts; Long-term Operation Impacts - Compatibility with Air Quality Plans, Pollutant Emissions; Ozone Concentrations - 1990, 2000; Carbon Monoxide Concentrations - 1990, 2000; Total Suspended Particulate Concentrations - 1990, 2000; Nitrogen Dioxide Concentrations - 1990, 2000; Sulphur Dioxide Concentrations - 1990, 2000.

V. MITIGATION OF ENVIRONMENTAL IMPACTS (pp. V.I.1-V.I.2). Annual Limits on New Commercial Development in the City; Measures Identified by this Report

VOLUME 2: APPENDICES (pp. O.1-O.9). Calculations of Air Pollutant Emissions and Carbon Monoxide Concentrations

VOLUME 3: SUMMARY OF COMMENTS AND RESPONSES (pp. C&R I.1-11). Part 1: Responses

Upon completion, the project would affect air quality in two ways. Emissions would be generated by project-related traffic, and by combustion of natural gas for building space

and water heating. Transportation sources would account for over 95% of project-related emissions.

The California Legislature mandated a biennial inspection and maintenance (I/M) program which applies to most cars and light trucks in California. This program went into operation in March 1984. An annual I/M program was evaluated in the 1982 Bay Area Air Quality Plan based on the 1979 source inventory. Based on predicted reduction in hydrocarbons and CO of 25% in vehicles covered, a reduction in total motor vehicle-generated CO of about 18% would be expected. The reduction in total regional CO emissions would be about 16%. The reduction in motor vehicle-generated hydrocarbons would be 17%; the reduction in total regional hydrocarbon emissions would be about six percent. Vehicle emission factors used in the model in the Downtown Plan EIR did not take the I/M program into account. To account for reductions from the I/M program, revised emission factors have been used in the revised Modified Linear Rollback (MLR) model for this project. This is the same version of revised MLR which was developed for the Downtown Plan EIR. By not quantifying predicted reductions from the I/M program, CO emissions were over-predicted in the Downtown Plan EIR.

Curbside CO concentrations at selected intersections that would be affected by project-generated traffic and by cumulative development traffic were projected for conservative conditions, and are compared with ambient standards in Table 10, page 113. In 2000 the average vehicle is expected to emit 43% less carbon monoxide (CO) than in 1984 due to ongoing state and federal emissions controls.

Currently, the eight-hour CO standard is estimated to be violated at the Second and Howard and Fourth/Harrison intersections. CO concentrations are predicted to be less in 2000 than in 1984 and would not violate the standards at either intersection in this future scenario.

TABLE 10

EXISTING AND PROJECTED CURBSIDE CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS

Intersection	Averaging Time	Concentrations (ppm)[1] Existing	Downtown Plan[2] 2000
Second/Mission	1-hour	11.4	6.6
	8-hour	8.8	4.9
Second/Howard	1-hour	13.5	7.7
	8-hour	10.5	5.9
Fourth/Harrison	1-hour	15.0	8.1
	8-hour	11.6	7.0
First/Harrison	1-hour	10.9	6.7
	8-hour	8.4	4.7

[1]Calculations for all scenarios were made using a revised version of the Modified Linear Rollback (MLR) method described in the Downtown Plan EIR. Background concentrations were calculated to be 7.4 ppm for one hour and 5.7 ppm for eight hours in 1984, and 4.2 ppm for one hour and 3.0 ppm for eight hours in 2000. Underlined values are in violation of state or federal CO standards. The one-hour state standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight-hour state and federal standards are 9 ppm. Emission rates were derived from the California Air Resources Board's EMFAC 6D computer model, as published in the BAAQMD's Guidelines, November, 1985. These emissions take into account the reduction in CO as a result of the ongoing statewide Inspection/Maintenance Program.

[2]Based on the growth forecast methodology contained in the Downtown Plan EIR. The project would be contained within this forecast.

Source: EIP Associates.

Table 11, page 115, shows projected daily emissions of pollutants in 2000 from project-generated traffic, projected daily emissions in 2000 for C-3 District development projected by the Downtown Plan EIR, and total emissions projected for the entire Bay Area by the 1982 Bay Area Air Quality Plan. The project would contribute about 1.7 percent to the total emission generated by Downtown Plan development, in 2000.

Emissions of total suspended particulates (TSP) resulting from construction and from vehicle trips generated by the project and cumulative development would increase TSP concentrations, which could increase the frequency of TSP standard violations in San Francisco, with concomitant health effects and reduced visibility.[1]

The 1982 Bay Area Air Quality Plan contains strategies which consist primarily of HC and CO emission controls on stationary sources and motor vehicles, and transportation improvements, and are aimed at attaining the federal ozone and CO standards. Emissions associated with the project and with cumulative downtown development under the Downtown Plan are not projected by this EIR or the Downtown Plan EIR to increase ozone concentrations, and thus would not conflict with the objectives of the 1982 Bay Area Air Quality Plan regarding ozone.

Cumulative downtown development had been projected by the Downtown Plan EIR potentially to result in a violation of the eight-hour CO standard at the Brannan/Sixth intersection as analyzed therein. By using the revised emission factors which account for the I/M program in the revised version of MLR contained in the Downtown Plan EIR, the City no longer predicts violations of CO standards at the Sixth and Brannan intersection, or other intersections which have been modeled in the greater downtown. Based on the above, cumulative greater downtown development would not conflict with objectives of the 1982 Bay Area Air Quality Plan regarding CO.

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[1] State particulate standards were changed in 1983 to concentrate on fine particulate matter which has been demonstrated to have health implications when inhaled. Until the State adopts a method for monitoring fine particulate matter, it is not possible to determine what proportion of TSP in San Francisco would be subject to review against the new standards, whether new standards would be violated, or what the health implications would be.

TABLE 11
PROJECTED DAILY POLLUTANT EMISSIONS

Pollutant	Emissions (tons per day)[1] Project 2000[2]	Downtown Plan[3] 2000	Bay Area[4] 2000
Hydrocarbons	0.008	0.6	560
Nitrogen Oxides	0.001	0.8	492
Carbon Monoxide	0.078	6.6	2,170
Particulates	0.017	1.3	764
Sulfur Oxides	0.002	0.1	225

[1]Project and Downtown Plan emissions calculated using BAAQMD EMFAC6C vehicle emission factors which do not take the I/M program into account. Emissions of HC, NOx, and CO include an assumed six minutes of idling time per vehicle trip. Emissions of TSP include dust disturbed from roadway surfaces.

[2]Based upon a weighted daily average of 6,848 miles traveled.

[3]Incremental emissions of C-3 District development, per The Downtown Plan EIR, Table IV.I .2, p. IV.I.12.

[4]Bay Area Air Quality Management District, Air Quality and Urban Development: Guidelines for Assessing Impacts of Projects and Plans, San Francisco, November, 1985.

Source: EIP Associates.

G. CONSTRUCTION NOISE

Ambient noise in the project vicinity is typical of noise levels in downtown San Francisco, which are dominated by vehicular traffic, including trucks, cars, Muni buses and emergency vehicles. Sidewalk noise measurements taken during the p.m. peak-commute time show average noise levels of 71 dBA on Mission Street and 69 dBA on Second Street.[1,2] The Downtown Plan EIR indicates ambient noise levels of about 77 dBA along Mission Street.[3]

Project construction would take place over 24 months, and would increase noise levels in surrounding areas. Construction noise levels would fluctuate depending on construction phase, equipment type and duration of use, distance between noise source and listener, and presence or absence of barriers between noise source and listener. To estimate probable noise impacts, this analysis assumes typical equipment and construction techniques. Table 12, page 117, shows typical exterior noise levels associated with the different phases of construction (see Appendix E, page A-48, for a table of typical noise levels found in the everyday environment). Interior noise levels at 50 ft. from the noise source would be about 10 to 15 dBA less than those shown in Table 12. Closed windows would reduce noise levels by about 20 to 25 dBA below those shown in the table.

Construction noise is regulated by the San Francisco Noise Ordinance (Article 29 of the City Police Code). The ordinance requires that sound levels of construction equipment other than impact tools not exceed 80 dBA at a distance of 100 ft. from the source. Impact tools (jack hammers, pile drivers, impact wrenches) must have both intake and exhaust muffled to the satisfaction of the Director of Public Works. Section 2908 of the Ordinance prohibits construction work at night, from 8:00 p.m. to 7:00 a.m., if noise would exceed the ambient noise level by five dBA at the project property line, unless a special permit is authorized by the Director of Public Works.

Project construction would occur in several stages: demolition and clearance, excavation, foundation preparation, frame erection, and exterior finishing. Throughout the construction period there would be truck traffic to and from the site, initially hauling away debris and dirt and then delivering building materials.

TABLE 12

TYPICAL COMMERCIAL/INDUSTRIAL CONSTRUCTION NOISE LEVELS AT 50 FEET FROM THE SOURCE

Construction Phase	Duration of Phase (weeks)[1]	Average Noise Level (dBA)
Ground clearing	10	84
Excavation	7	89
Foundations[2]	10	78
Erection	38	85
Exterior Finishing	38	89

[1]Phases of construction would overlap.

[2]Time includes six weeks of pile driving, noise level is for construction activities other than pile driving (noise levels during pile driving could reach 105 dBA at 50 ft.)

Source: Bolt, Beranek and Newman, December 13, 1971, Noise from Construction Equipment and Home Appliances, vs. Environmental Protection Agency.

The project would require pile driving. Conventional unmuffled and unshielded pile drivers emit noise levels of 100 to 110 dBA at a distance of 100 ft. each time the driver strikes the pile. The Department of Public Works allows pile driver operation under certain conditions, which may include specifying relatively quiet equipment, predrilling pile holes, and/or specifying hours of operation to reduce the number of people exposed. Pile driving would occur intermittently over about 10 weeks; hammering would occur during a five- to eight-minute period per pile. Noise levels, when the pile is struck, could reach 105 dBA at 50 ft.

During excavation and exterior finishing, noise levels in buildings adjacent to the site could reach as high as 74 dBA (the windows are not operable), and during pile driving, noise levels could reach as high as 90 dBA. In the buildings across Mission and Second Streets which have operable windows, noise levels could reach as high as 95 dBA with the windows open and 85 dBA with the windows closed during pile driving.

Vibrations from the impact during pile driving would be felt in adjacent and nearby buildings. These vibrations have been found to be more disturbing to some people than the high noise levels. Responses by individuals to noise and vibration vary widely, both physical (elevated blood pressure, increased heart rate, changes in breathing and muscle contractions), and psychological effects (stress and reduced work productivity) have been observed in some people. General stress reaction has been observed in humans exposed to brief sounds of 76 dBA.[4] Noise at levels greater than 70 dBA would require workers to close the windows or shout to communicate. Intermittent noises, such as pile driving noise, reduce the perception of control over the environment. This loss of control frequently results in a depressed mood and depressed motivation.[5] Repeated impulse and intermittent sounds of high level appear more likely to disrupt performance, than continuous or steady sounds of comparable level.[6]

Two additional projects, 535 Mission Street and 524 Howard Street, are planned in the project area. A third project in the area, 100 First Street, is currently being constructed. Should these projects' construction schedules coincide with that of the proposed project, noise levels would be expected to increase by two to five dBA. This would generally be audible (depending on the loudness of the activity) and would probably be annoying, since noise from construction of one project would be annoying to the nearest receptors (those within 100 ft.). Should one project be completed and a second begin soon after, noise impacts would be prolonged.

In summary, during the majority of construction activities, noise levels would be expected to be at or above existing levels in the area. There would be times, particularly during the operation of pile drivers or impact wrenches, when noise would interfere with indoor activities in nearby offices and retail stores.

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[1] Noise measurements were taken on Wednesday, May 28, 1986 from 3:00 to 4:30 p.m. by Charles M. Salter Associates, Inc. Measurement locations were opposite 573 Mission Street, in the parking lot at the building setback line (five feet above grade), and at 121 Second Street, three feet from the building facade (five feet above grade).

[2] A decibel (db) is a logarithmic unit of sound energy intensity. Sound waves, traveling outward from a source, exert a force known as sound pressure level (commonly called

"sound level"), measured in decibels. A dBA is a decibel corrected for the variation in frequency response of the typical human ear at commonly encountered noise levels. Leq is the equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the time-varying sound level during the same time period. Lmax is the maximum noise intensity reached during the period of time of the measurement.

[3]San Francisco Department of City Planning, Downtown Plan Environmental Impact Report (EIR), EE81.3, certified October 18, 1984, Volume 1, pp.IV.J.1-9, particularly Table IV.J.2, pp. IV.J. 9-10.

[4]The Central Institute for the Deaf, Effects of Noise on People, U.S. EPA, 1971.

[5]Sheldon Cohen, et al., "Cardiovascular and Behavioral Effects of Community Noise," American Scientist, Volume 69, October 1981.

[6]National Institute for Occupational Safety and Health, Occupational Exposure to Noise, U.S. Department of Health, Education and Welfare, 1972.

H. EMPLOYMENT AND HOUSING

1. EMPLOYMENT

a. Direct Project-Related Employment

At full operation, the project would accommodate approximately 1,763 permanent full-time jobs on-site including 1,704 office workers (at one worker per 267 gsf) and 21 retail workers (at one worker per 350 gsf). The 152 employees currently on the project site would be displaced. The net increase would be 1,611 jobs.

No tenants have leased space in the proposed project at this time. Prospective tenants are anticipated to consist mainly of corporate and professional businesses, and government agencies. Because specific tenants are unknown at this time the projected total number of employees was derived on the assumption of an average number of square feet per employee, by employment type.

b. Indirect Employment

Secondary employment and income would result from permanent project employment. Through the multiplier effect, each employed person would generate additional employment through off-site expenditures for goods and services. On the assumption that the new office jobs on-site would be primarily in the finance, insurance, and real estate (FIRE) Sector, about 3,635 additional jobs in other sectors of the Bay Area economy would result from the project.[1] Thus, the total number of permanent Bay Area jobs that would be created by the proposed project would be about 5,247 (1,611 net direct jobs and 3,635 indirect jobs).

c. Construction Employment

Project construction would require about 545 person-years of labor, an average of about 273 construction jobs over the 24-month construction period. As a result of the multiplier effect of project construction about 423 construction-related indirect jobs would be created during the construction period. Some of this secondary employment would be in San Francisco, although it is difficult to estimate the amount.

2. RESIDENCE PATTERNS AND HOUSING

The following paragraphs summarize material from the Downtown Plan EIR. This summarized material is found on the following pages of the Downtown Plan EIR which are incorporated by reference:

- Volume I: Final EIR text. Pages IV.D.40 through 98
- Volume II: Appendices. Appendix I
- Volume III, Part 1: Responses. Section D

a. Housing Market Impacts

The Downtown Plan EIR analyzed the effects of C-3 employment growth on future housing market conditions. That analysis was based on the forecasts of C-3 district and citywide employment growth as estimated by City consultants, considered in the context of regional population growth, regional employment growth, demographic changes including changes in household composition and labor force participation, and an increased housing supply, all as projected by ABAG. Growth in C-3 employment would result in more households with more income to pay for housing, adding to already strong demand for housing in San Francisco. With forecast C-3 district employment growth, there would be approximately 30,000 more C-3 district workers living in San Francisco. While there would be an increase in San Francisco's housing supply, the private market is expected to be unable to supply much new housing that would be affordable to a large segment of the City's population.

The age distribution of the population, household sizes and incomes, mobility and migration, lifestyle preferences, land availability, land use policies, construction costs and general economic conditions will also have implications for the housing market. As a result of these factors, as well as employment growth in the C-3 district, housing in San Francisco is expected to remain more costly relative to household incomes than it has been in the past. Some new C-3 district employees would decide not to move to the City, and some existing City residents would move out of the City, for a variety of reasons only one of which would be higher housing costs. As a result of San Francisco's continuing high housing costs, some people would pay more for the same quality housing, and others would

end up with lower quality housing; many would allocate a larger share of their resources for housing. Generally, these impacts would result in the greatest sacrifices from those households with fewer financial resources.

b. Residence Patterns

The C-3 district contains the greatest concentrations of the types of jobs most likely to be filled with workers who commute from outside of San Francisco. However, C-3 district workers did not represent large percentages of the total number of employed residents of the other Bay Area counties in 1980/1981, and these percentages are expected to be very similar, although somewhat larger, in 2000. As shown on Table IV.D.20, page IV.D.81h of the Downtown Plan EIR, 6.7% of all employed Alameda County residents in 1980/1981 worked in the C-3 District. This would change to 7.8 to 7.9% in 2000. Marin County has the highest concentration of C-3 District workers: 13.7% of employed Marin County residents work in the C-3 district. This figure would grow to 15.2 to 16.1% in 2000. Santa Clara County has the lowest concentration of C-3 district workers: 0.3% of employed Santa Clara County residents are working in the C-3 district. This percentage is not expected to change in 2000.

Because C-3 district employment growth is one of many factors affecting future housing market conditions, and because the increased numbers of C-3 district employees residing outside of San Francisco, when considered in the regional context of employment growth, are not great, the City Planning Commission, in certifying the Downtown Plan EIR, did not find a significant impact on the region's housing supply as a result of cumulative downtown growth.

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[1] Indirect employment projections are based on A 1980 Hybrid Input-Output Model for the San Francisco Bay Region, Association of Bay Area Governments, April 1984. A multiplier of 2.25 was used for office jobs, 0.71 for retail jobs and 1.33 for maintenance jobs. The multipliers used are averages of the Type I and Type II employment multipliers contained in the model.

I. GROWTH INDUCEMENT

The project would add about 363,355 gsf of net new office space and would result in a decrease of about 13,300 gsf of retail space. Employment at the site would increase by 1,611 people to a total of 1,763 employees. Occupants of the proposed project are not known, but could include tenants expanding or relocating from other San Francisco locations, tenants relocating from outside San Francisco, and firms new to the Bay Area. The increase in employment at the project site, therefore, would not necessarily represent employment that is new to San Francisco. If the project were fully leased, however, and the office space of the project did not create permanent vacancies in other San Francisco office buildings, total employment in San Francisco would increase by about 1,611 jobs due to the project. Approximately 3,605 additional jobs would be supported indirectly in San Francisco through the multiplier effect.

If marketed successfully, the project, together with other planned office development, could have growth-inducing effects by demonstrating a market for office space in this area. This could thereby encourage similar developments on lots (including smaller lots assembled for development) currently occupied by low-rise or mid-rise buildings containing support services. The demand for office space reflects the trend of growth in service sector and headquarters office activities and employment in San Francisco. Increases in downtown office space and employment would contribute to continued growth of local and regional markets for housing, goods, and services. These growth-inducing effects would be less extensive if the vacancy rate for office space rises. Should this occur, projected increases in downtown employment would be less and the growth in demand for goods, services and housing would be lower.

It is expected that some downtown workers would want to live in San Francisco. Employment growth, however, would not be reflected directly to increases in demand for housing and city services to residents, as some new jobs would be held by individuals who already live and work in the City; who prefer to live in the City but previously either did not work, or worked outside the City; who prefer to live in surrounding communities; or by those unable to afford or locate housing in the City. New downtown workers would also increase the demand for housing in other parts of the Bay Area.

Any net increases in employment downtown would increase the demand for retail goods and services in the area. The project would intensify this demand by increasing the amount of employment on the site.

Increases in employment downtown would also increase demand for business services, to the extent that the expanded space would not be occupied by firms providing those services. Business service firms with expanded markets would increase demand for existing space and possibly for further new development.

No expansion to the municipal infrastructure not already under construction would be required to accommodate new development and increased employment due to, or induced by, the project.

As noted above, the project would displace businesses on the site that include downtown support services, retail, storage and office space. The project, in conjunction with other projects on the project block and in the project vicinity, would continue the trends of loss of industrial and blue-collar jobs and the escalation of land values and rents in the South of Market area that have been documented by the Department of City Planning.[1]

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[1] Dean Macris, Director of Planning, "Memorandum: South of Market Interim Controls," January 26, 1982.

V. MITIGATION MEASURES WHICH WOULD MINIMIZE THE POTENTIAL IMPACTS OF THE PROJECT

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the proposed project. Some of these measures have been or would be adopted and implemented by the project sponsor, project architects or contractors and are proposed as part of the project. Some measures are under consideration and others have been rejected. Implementation of some measures may be the responsibility of public agencies.

Each mitigation measure and its status are discussed below. Where a measure has not been included in the project, the reasons for this are discussed. Any or all of the measures not included in the project could be required by the City Planning Commission to be included as part of the project as conditions of approval if the project is approved. Measures indicated with an asterisk (*) were adopted as part of the project in the Final Initial Study (see Appendix A, pages A-1 to A-31).

URBAN DESIGN

Measures Proposed to be Included in the Project

- Design features, such as a series of upper level setbacks on the south side of the proposed structure, would minimize the perceived height of the building and would provide transition between the lower-rise older development in the south of Market area and the high-rise development in the Financial District and along Market Street. Design features of the proposed project intended to conform to the prevailing design motif of the New Montgomery-Second Street Conservation District include the facade treatment of the three-story corner portion of the

project which would incorporate the vertical elements and window treatment of the adjacent Rapp Building.

* In order to reduce obtrusive light or glare, the project sponsor would use no mirrored glass on the building.

Measures Not Proposed to be Included in the Project

- The height and/or the bulk of the proposed project could be reduced by eliminating floors or inclusion of more or larger upper level setbacks. Such measures have not been included in the proposed project because the sponsor believes that reduction in the number or size of the office floors would make it difficult to fulfill the objective of meeting a demand for large area office users.

TRANSPORTATION

Measures Proposed to be Included in the Project

- On-site transportation brokerage services would be provided for the life of the project to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak-period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART, Muni, and other carriers' passes to employees; and encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area Commuters by providing a central clearinghouse for carpool and vanpool information. The transportation management program and the responsibilities of the provider of the transportation brokerage services would be detailed in a Memorandum of Agreement between the project sponsor and the Department, which would be executed prior to issuance of an occupancy certificate.

- Should Ordinance 224-81, which requires the sponsor to contribute funds for maintaining and augmenting transportation service in an amount proportional to the demand created by the project, be declared invalid by the courts, the project

sponsor has agreed to participate in any subsequent equivalent mitigation measures adopted in lieu thereof that are equitable and legal, which the City adopts to apply to all developments which are similarly situated.

- The placement of paving, landscaping or structures in the sidewalk area (subject to City approval) would be done in such a way as to minimize interference with pedestrian traffic.

- While subsurface sidewalk vaults are discouraged, should they be needed, the project sponsor would design subsurface sidewalk vaults to allow for possible future widening of adjacent streets. Vault design shall be of sufficient strength to carry maximum vehicular live and dynamic loads. Design of the vault area to accommodate street trees could also be made, subject to Department of Public Works approval. In addition, should vaults exist or be installed as part of the project, the project sponsor would accommodate and pay for the installation of all subsurface footings, supports and foundations as may be required for future public improvements such as street lights, street trees, trolley wire poles, signs, benches, transit shelters, etc. within project vault areas. Placement of such improvements is entirely within the discretion of the City.

- Building directories and signs for the service elevators would be placed in the loading area.

- The project sponsor shall: (i) participate with other project sponsors and/or the San Francisco Parking Authority in undertaking studies of the feasibility of constructing an intercept commuter parking facility in a location appropriate for such facility to meet the unmet demand for parking for those trips generated by the project which cannot reasonably be made by transit, and (ii) participate with other project sponsors and/or the Municipal Railway in studies of the feasibility of the establishment of a shuttle system serving the project site and the parking facility.

- To meet the short-term parking deficit identified in the EIR, the project sponsor shall (a) provide for the conversion of existing long-term parking spaces in the

core to short-term use and/or (b) provide the short-term parking spaces in the short-term parking belt as defined in the Master Plan, either independently or in association with other project sponsors and/or the San Francisco Parking Authority, to meet the demand for those short-term trips which cannot reasonably be accommodated by public transit.

- Off-street parking spaces would be controlled to assure priority for vanpool and carpool vehicles and vehicles driven by the physically handicapped. All remaining parking spaces would be subject to rates that encourage short-term use of said spaces and discourage all-day parking; the parking rate would be reviewed and approved by the Department of City Planning, or alternatively, the project sponsor would agree to be bound by a formula, to be developed by the Department of City Planning, which structures rates so as to favor short-term parking.

- When both buildings are 80% occupied, the sponsor would conduct a survey, in accordance with methodology approved by the Department of City Planning, to assess actual trip generation patterns of project occupants and actual pick-up and drop-off areas for carpools and vanpools. The project sponsor would make this survey available to the Department of City Planning. This measure would provide needed information to aid in transportation planning in the City.

- The project would include access to and from on-site off-street parking and off-street loading areas on Minna Street in order to avoid increased traffic congestion on Second and Mission Streets.

- The project sponsor would, in consultation with the Municipal Railway, install eyebolts for Muni trolley wires on the proposed building wherever necessary or agree to waive the right to refuse the attachment of eyebolts to the proposed buildings if such attachment is done at City expense. (The Muni Five-Year Plans identify existing and proposed routes.)

- The project would include in the parking structure warning devices (lighted signs and noise emitting devices) to alert pedestrians to vehicles exiting the structures onto Minna Street.

- During the construction period, construction truck movement would be permitted only between 9:00 a.m. and 3:30 p.m. on Mission and Second Streets to minimize peak-hour traffic conflicts and to accommodate queuing of Muni buses prior to peak-hour. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Bureau of Engineering of the Department of Public Works, the Fire Department, Muni and the Department of City Planning to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic impacts due to lane closures during construction, the project sponsor would coordinate with construction contactors for any concurrent nearby projects that are planned for construction or later become known.

- Secure, safe bicycle storage facilities would be provided relative to the demand generated by project commuters and short-term visitors.

Measures That Could Be Implemented by Public Agencies

- The City could adopt and implement the transportation improvements described in the Downtown Plan, which would affect transportation services in the project area. Cumulative transportation impacts within San Francisco would be reduced by the improvements and, to the extent that San Francisco can influence transportation improvements recommended in the Plan for areas outside the City, adoption of the Plan will reduce regional cumulative impacts caused by downtown growth.

- Some of the Implementing Actions would require approval by decision-makers outside the City and County of San Francisco; many of the measures would require action by City agencies other than the City Planning Commission, such as the San Francisco Public Utilities Commission and/or Board of Supervisors. These measures are systemwide measures such as the relevant transportation

mitigation measures described above as part of the project or such as the Transit Development Impact Fee imposed by San Francisco ordinance 224-81 which contribute indirectly to implementation of these system-wide measures. However, it is not appropriate to impose mitigation at system-wide levels on individual projects. Pacific Gas and Electric Company could coordinate work schedules with other utilities requiring trenching, so that street disruption would take place during weekends and off-peak hours. This should be done through the San Francisco Committee for Utility Liaison on Construction and Other Projects (CULCOP). In-street utilities should be installed at the same time as the street is opened for construction of the project to minimize street disruption.

AIR QUALITY

- o Mitigation measures identified for housing impacts would also mitigate air quality impacts. Improving the balance of jobs and housing in San Francisco would reduce long-distance home-to-work travel, and would reduce local and regional emissions of all pollutants.

- * The project sponsor would require the general contractor to sprinkle demolition sites with water continually during demolition activity; sprinkle unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand, and other such material; cover trucks hauling debris, soil, sand, or other such material; and sweep street surrounding demolition and construction sites at least once per day to reduce TSP emissions. The project sponsor would require the general contractor to maintain and operate construction equipment so as to minimize exhaust emissions of TSP and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs (to reduce emissions) for equipment that would be in frequent use for much of a construction period.

Measures That Could Be Implemented by Public Agencies

- Mitigation measures identified for traffic impacts would also mitigate air quality impacts. Increasing roadway capacity (where feasible and cost effective), reducing vehicular traffic through increased ridersharing (carpool, vanpool, and transit), and implementing flexible and/or staggered work hours would reduce local and regional emissions of all pollutants.

CONSTRUCTION NOISE

Measures Proposed to be Included in the Project

- The construction contract would require that the project contractor muffle and shield intakes and exhaust, shroud or shield impact tools, and use electric-powered rather than diesel-powered construction equipment, as feasible, so that noise would not exceed limits in the City's Noise Ordinance (Article 29, San Francisco Police Code, 1972).

- The general contractor would construct barriers around the site, and around stationary equipment such as compressors, which would reduce construction noise by as much as five dBA. The general contractor would locate stationary equipment in pit areas or excavated areas as these areas would serve as noise barriers.

- The project sponsor would require that the construction contractor predrill holes for piles, in order to minimize noise and vibration from pile driving. The actual pounding from pile driving would occur during a five- to eight-minute span per pile. The project sponsor has agreed to restrict pile driving to hours required by the Department of Public Works.

- The project sponsor would require that the construction contractor limit pile driving activity to result in the least disturbance to neighboring uses. This would require a work permit from the Director of Public Works pursuant to the San Francisco Noise Ordinance Section 2907(c).

* As recommended by the Environmental Protection Element of the San Francisco Master Plan, an analysis of noise reduction measurements would be prepared by the project sponsor and recommended noise insulation features would be included as part of the proposed building. For example, such design features would include fixed windows and climate control.

HOUSING

Measures Proposed to be Included in the Project

o The project sponsor would mitigate the net housing demand of 140 units generated by the project pursuant to the City's Office Affordable Housing Production Program (OAHPP).[1] The project sponsor would fulfill the requirement either by direct sponsorship of a housing development, by provision of financial aid to a housing development, by direct payment to the City or by a combination of all these methods, as provided in the OAHPP.

HAZARDS

Measures Proposed to be Included in the Project

* An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to ensure coordination between the City's emergency planning activities and the project's plan, and to provide for building occupants in the event of an emergency. The project's plan would be reviewed by the Office of Emergency Services and implemented by building management insofar as feasible before issuance of final building permits by the Department of Public Works.

ARCHITECTURAL, HISTORIC AND CULTURAL RESOURCES

Measures Proposed to be Included in the Project

o The sponsor would retain the services of an archaeologist. The Environmental Review Officer (ERO), in consultation with the President of the Landmarks

Preservation Advisory Board (LPAB), and the archaeologist should instruct all excavation and foundation crews on the project site of potential for discovery of cultural and historic artifacts, and the procedures to be followed if such artifacts are uncovered.

Given the strong possibility of encountering the remains of cultural or historic artifacts within the project site, prior to the commencement of foundation excavations, the project sponsor would undertake a program of archaeological testing. This would consist of observation and monitoring by a qualified historical archaeologist of site clearance of at least any materials below existing grade level, and a series of no more than ten mechanically excavated trenches be dug within the parameters of the project site.

An historical archaeologist would be present during site excavation and would record observations in a permanent log. The ERO would also require cooperation of the project sponsor in assisting such further investigations on site as may be appropriate prior to or during project excavation, even if this results in a delay in excavation activities.

In addition, a program of on-site construction monitoring by a qualified historical archaeologist, designed to allow for the recovery of a representative sample of the cultural materials existing on the site, would be implemented by the project sponsor. This monitoring and recovery program would result in a written report to be submitted to the ERO, with a copy to the project sponsor.

Should cultural or historic artifacts be found following commencement of excavation activities, the archaeologist would assess the significance of the find, and immediately report to the ERO and the President of the LPAB. Upon receiving the advice of the consultants and the LPAB, the ERO would recommend specific mitigation measures, if necessary. Excavation or construction activities following the preconstruction archaeological testing program which might damage the discovered cultural resources would be suspended for a maximum of four weeks (cumulatively for all instances that the

ERO has required a delay in excavation or construction) to permit inspection, recommendation and retrieval, if appropriate.

Following site clearance, an appropriate security program would be implemented to prevent looting. Any discovered cultural artifacts assessed as significant by the archaeologist upon recurrence by the ERO and the President of the LPAB would be placed in a repository designated for such materials. Copies of the reports prepared according to these mitigation measures would be sent to the California Archaeological Site Survey Office at Sonoma State University.

GEOLOGY/TOPOGRAPHY

Measures Proposed to be Included in the Project

* A detailed foundation and structural design study would be conducted by a California-licensed structural engineer and a geotechnical consultant. The project sponsor would follow the recommendations of these studies during the final design and construction of the project.

* During dewatering, any groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, in order to reduce the amount of sediment entering the storm drain/sewer lines.

* The final soils report would address the potential settlement and subsidence impacts of dewatering. Based upon this discussion, the soils report would contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Groundwater observation wells would be installed to monitor the level of the water table and other instruments would be used to monitor potential settlement and subsidence. If, in the judgement of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be

used to halt this settlement. The project sponsor would delay construction if necessary. Costs for the survey and any necessary repairs to service under the street would be borne by the project sponsor.

* During excavation, shoring and bracing would be used to reduce soil movements beneath nearby structures and adjacent streets. The excavation would be kept dry by sump pumping rather than through the use of dewatering wells. This would prevent consolidation of soils supporting adjacent streets and nearby structures and would avoid exposing nearby wooden foundations to dry rot.

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[1]The Office Affordable Housing Production Program (OAHPP), Ordinance 358-85, was passed by the Board of Supervisors July 8, 1985. It was signed by the Mayor July 19, 1985 and its effective date is August 18, 1985. The OAHPP requires developments to provide housing at a ratio of 0.386 units per 1,000 gross square feet of net new office space.

VI. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

This chapter identifies impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the proposed project, or other mitigation measures that could be implemented, as described in Chapter V. Mitigation Measures, pages 125 to 135.

The following unavoidable significant environmental impacts resulting from the proposed project have been identified. The final determination of significant impacts will be made by the City Planning Commission as part of their certification action. Chapter VI will be revised, if necessary, to reflect the City Planning Commission's findings, before printing of the Final Environmental Impact Report.

Cumulative development in Downtown San Francisco and nearby areas would have a significant effect on the environment in that it would generate cumulative traffic increases as well as cumulative passenger loadings on Muni, BART and other regional transit carriers. These cumulative transportation impacts could cause violations to total suspended particulates (TSP). The proposed project would contribute to these cumulative effects.

VII. ALTERNATIVES

This chapter consists of possible alternatives to the proposed project. For each alternative, the environmental impacts of the alternative as well as the environmental impacts of the proposed project to be avoided are identified. Finally, the project sponsor's reasons for not selecting the identified alternative is provided. Despite the project sponsor's reason for rejecting an alternative project, the City Planning Commission could approve an alternative project if it determines that the alternative is a more appropriate use of the site. The following five alternatives are considered: A. No Project; B. No Transfer of Development Rights; C. No Parking Project; D. No Demolition in Conservation District Project; and E. Project with Maximum TDRs. For Alternative B, the No Transfer of Development Rights Project, two variants will be considered, consisting of a project conforming to the City Planning Code and including on-site parking and a project conforming to the Code and not including on-site parking.

A. ALTERNATIVE ONE: NO-PROJECT ALTERNATIVE

This alternative would involve no change to the project site as it now exists. The structures located on lots 72, 73, 74, 75 and 76 would remain as they are indefinitely. No demolition would occur and the sponsor would continue to try to lease out any vacant space.

IMPACTS

If the no project alternative were implemented, none of the impacts associated with the proposed project would occur. The existing transportation and air quality conditions would continue as they are. Occupancy in off-street public parking lots and garages in the vicinity would continue to be about 87%. The peak transit level of service on Mission, Second and surrounding streets would remain unchanged. Noise, air pollution and energy consumption would not change although they may be affected by cumulative impacts

associated with planned development in the project area. There would be no impacts on urban design, architectural and historic resources. The No-Project Alternative would not result in the demolition of a building in the New Montgomery-Second Street Conservation District, and, thus, would have no impact on architectural and historic resources. There would be no new employment generated. This alternative would not contribute to growth inducement in areas surrounding the project site, or to cumulative impacts on downtown transportation demand and regional air quality. The existing limited use of the entire project site, compared to the allowable development potential under the City Planning Code, would continue to offer an incentive for redevelopment of the project site.

REASONS FOR REJECTION

The project sponsor has rejected this alternative since it meets none of the sponsor's objectives outlined in Chapter II, page 11. These objectives include the provision of high quality office and retail space, the provision of an office building attractive to major office space users (including back-office type users), to build a boldly designed building compatible with the Conservation District, to provide a large, useable open space and to realize a reasonable return on investment.

B. ALTERNATIVE TWO: NO TRANSFER OF DEVELOPMENT RIGHTS

Variant 1: On-Site Parking

In this variant of Alternative Two, the project would comply directly with the City Planning Code but would not include TDRs and would include below-grade parking to the extent allowed by the Code.

This variant would be approximately one-half of the size of the proposed project, due to the reduction in maximum FAR from 16.8:1 to 9.0:1 as a result of the elimination of floor area from TDRs purchased from rated structures in the C-3 District. This variant would include a total of 248,020 gsf of floor area, including 243,820 gsf of office space (233,298 gsf, 49% less than the proposed project), 4,300 gsf of ground floor retail space (3,050 gsf, 41% less than the proposed project), 7,890 gsf of open space (the same as in the proposed project). The building would rise 16 stories to a maximum height of 291 feet at the top of the upper tower (compared to 457 feet for the proposed project). The two required off-street loading spaces (compared to five for the proposed project) would be accessed from

Minna Street as in the proposed project. The FAR for this variant would be 9.0:1 compared to 16.8:1 for the proposed project (see Figure 32, page 140).

Although the height of the alternative would be decreased compared to the proposed project, other design features, including facade treatment and materials would be the same as in the proposed project.

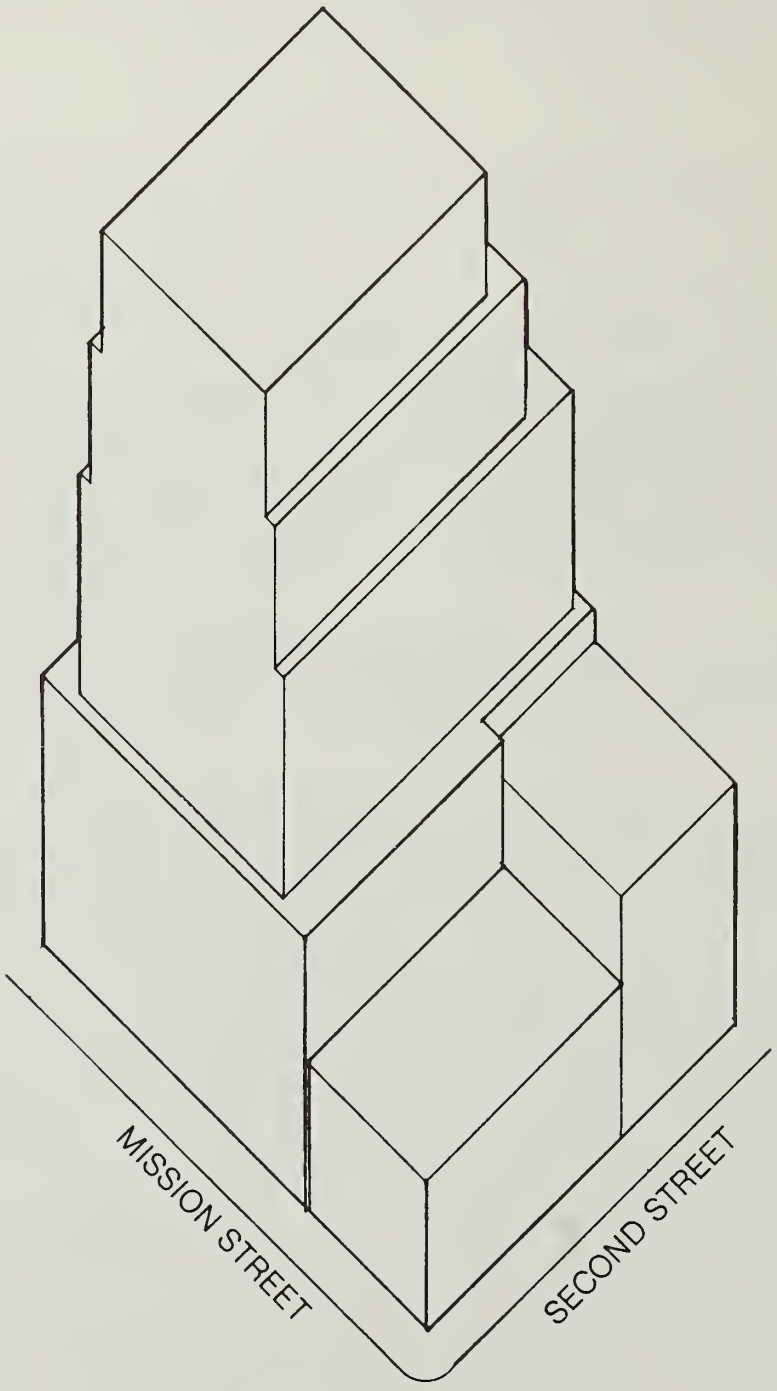
IMPACTS

This alternative would be 55% smaller than the proposed project. Since the heights of this alternative would be lower, similar to other recent projects constructed in the project area, the alternative would have less impact on building scale in the project vicinity than the proposed project. However, the building in this alternative would continue to be higher and bulkier than the prevailing scale of older development in the project area. The alternative, like the proposed project, would result in demolition of all existing buildings on the project site and construction of a three-story structure with rooftop open space in the New Montgomery-Second Street Conservation District and would, thus, have the same impacts on architectural and historic resources as the proposed project. As in the proposed project, this alternative would result in excavation of the project site and, thus, could have potential impacts on archaeological resources. The growth-inducing impacts of this alternative would be similar to those for the proposed project.

There would be a total of 303 net new daily person trip-ends generated by this alternative, compared to 4,582 net new daily person trip-ends generated by the project. Transportation impacts associated with increased travel demand would be 93% less than in the proposed project, proportional to the decrease in overall travel demand associated with the alternative. The decrease in net new travel demand (93% decrease) is significantly greater than the decrease in overall building size (55%) due to the size of the existing office uses. Net new travel demand is calculated as the increase over the existing whereas building size is only that, actual building size. As such, while the decrease in overall building size may be 55%, due to the large amount of existing travel demand the decrease in net new travel demand is much greater. Despite this decrease in travel demand, impacts at nearby intersections associated with cumulative downtown development would not differ from the proposed project, since the decrease would be too small to measure.

SECOND AND MISSION PROJECT
ALTERNATIVE B
AXONOMETRIC VIEW

FIGURE 32



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SOURCE: SKIDMORE, OWINGS AND MERRILL

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Estimated net new parking demand would be 64 spaces, 125 spaces (66%) less than the estimated net new parking demand for the proposed project due to a greater percentage decrease in net new square footage than total square footage. Occupancy in off-street parking lots and garages in the project vicinity would remain at the same at about 87% compared to the increase from 87% to 89% with the proposed project.

Employment generated by this alternative, both direct and indirect, would decrease from 5,216 jobs in the proposed project to 2,590 jobs in this alternative. On-site construction related employment would decrease with this alternative from 273 jobs in the proposed project to 189 jobs. Under the Office Affordable Housing Production Program, this alternative would generate a requirement for 59 housing units, 81 fewer than the 140 required for the proposed project.

Air quality impacts from this alternative would be about 93% less than for the proposed project due to the reduction in travel associated with the alternative. Construction noise impacts would be the same intensity (pile driving would still be required) but the duration would be about 50% less than for the proposed project in proportion with the decrease in overall gross floor area constructed.

The alternative would be about 200 feet shorter than the proposed project therefore, shadow impacts would be reduced at all times of the year. As with the proposed project, Alternative B would not impact Proposition K space at any time of the year. Impacts of this alternative on streets and sidewalks in the immediate vicinity of the site would be similar to the proposed project. However, impacts on public open space in the project area would be reduced and their duration decreased. The outline of the alternative shadow would theoretically extend onto Market Street at 10:00 a.m. on December 21. Existing shadows on Market Street at this time would prevent new shadows being added to existing conditions.

This alternative would cause wind speed changes similar to those associated with the proposed project. Winds at sidewalk locations would range from 7 to 17 mph, just as they would for the proposed project. Of the 18 locations within sidewalk areas, 14 would exceed the 11 mph comfort criterion for pedestrian areas, compared to 12 for the proposed project. Winds within the rooftop plaza would range from 5 to 9 mph, with 2 of

5 measurement points exceeding the 7 mph comfort criterion for sitting areas. The hazard criterion of an hourly average wind of 26 mph no more than one hour per year would not be exceeded within the area tested.

Variant 2: No On-Site Parking

This variant of Alternative Two would consist of a project complying with the City Planning Code and not including any TDRs or on-site parking.

This variant would be essentially the same as Variant 1, but would not include basement level parking. All building heights, bulk measurements, and floor areas would be the same. The FAR would be 9.0:1, the same as in Variant 1, compared to 16.8:1 with the proposed project.

IMPACTS

The impacts associated with this variant of Alternative Two would be the same as with Variant 2 except for impacts on occupancy in area off-street parking garages and lots and potential impacts on archaeological/cultural resources. Elimination of on-site basement level parking spaces would increase the impact on area off-street parking occupancy, which would rise from 87% to 89% with this variant, the same as the proposed project. The elimination of on-site parking would also decrease peak-hour traffic impacts on the level of service at intersections in the project vicinity. However, the decrease would be so small in relation to the total traffic volumes of those intersections during the peak hour that there would not be a measurable difference.

This variant would have no potential impacts on archaeological resources since there would be no required excavation of the project site. Any potential archaeological finds on the project site would remain on the site.

REASONS FOR REJECTION

Both variants of this alternative have been rejected by the project sponsor since the sponsor believes that the decreased overall floor area limits his ability to offer the appropriate amounts of office space attractive to major space users. In addition, in the case of Variant 2, the sponsor believes that it is necessary to include some on-site parking for the project to be economically feasible.

C. ALTERNATIVE THREE: NO PARKING

This alternative would be similar to the proposed project but would not include basement level off-street parking. The project would visually look the same as the proposed project including the same height, bulk measurements and facade materials. Total constructed area of the project would decrease by 7.2%, due to the decrease in below-grade parking area. The amount of gross square feet of office space, retail space, and open space would remain the same as the project with 454,918 gsf, 7,350 gsf, and 7,890 gsf, respectively. The FAR for the alternative would be 16.8:1, the same as the proposed project.

Impacts associated with an intensification of land uses, visual quality and urban design, architectural, historic and cultural resources, non-traffic transportation, air quality, housing and growth-inducing impacts of this alternative would be the same as for the proposed project. The elimination of on-site parking would decrease peak-hour traffic impacts on the level of service at intersections in the project vicinity. However, the decrease would be so small in relation to the total traffic volumes of those intersections during the peak hour that there would not be a measurable difference. Elimination of on-site basement level parking spaces would increase the impact on area off-street parking occupancy, which would rise from 87% to 90% with this variant, compared to an increase from 87% to 89% for the proposed project. Parking demand would be the same as in the proposed project. There would be no excavation and thus no potential impacts on cultural resources. With elimination of project traffic entering Second Street from Minna Street, this alternative would not contribute to potential disruption of transit, traffic and pedestrian flows along Second Street.

REASONS FOR REJECTION

The project sponsor has rejected this alternative because he believes that it is necessary to provide on-site parking for the building to be economically feasible.

D. ALTERNATIVE FOUR: NO DEMOLITION IN CONSERVATION DISTRICT

This alternative would be a project similar to the proposed project but not resulting in the demolition of the 595 Mission Street building which is located in the New Montgomery-Second Street Conservation District.

The existing 595 Mission Street building would be retained and rehabilitated, and would contain a total of 22,250 gsf of office space on three upper levels and 5,250 gsf of retail

space. The entire building, including the stucco facade would be retained as it currently exists. On the remainder of the project site a 33-story structure would be constructed containing a total of 439,625 gsf, including 434,503 gsf of office space, 9,380 gsf of open space in a rooftop plaza on the retained 595 Mission Building and in an interior atrium on the ground floor. The open space area would be accessible from both Mission and Second Streets, and a major entrance at the Mission/Second intersection, while the rooftop space would be accessible from the fourth floor of the office building and an elevator from the ground floor at the Mission/Second intersection. There would be 49 parking spaces provided on two levels under the new structure. In total, this alternative would contain a total of 456,753 gsf of office space (compared to 454,918 gsf with the project), 5,250 gsf of retail space (compared to 7,350 gsf with the project), 9,380 gsf of open space (compared to 7,890 gsf with the project) and 49 parking spaces (compared to 91 spaces with the project).

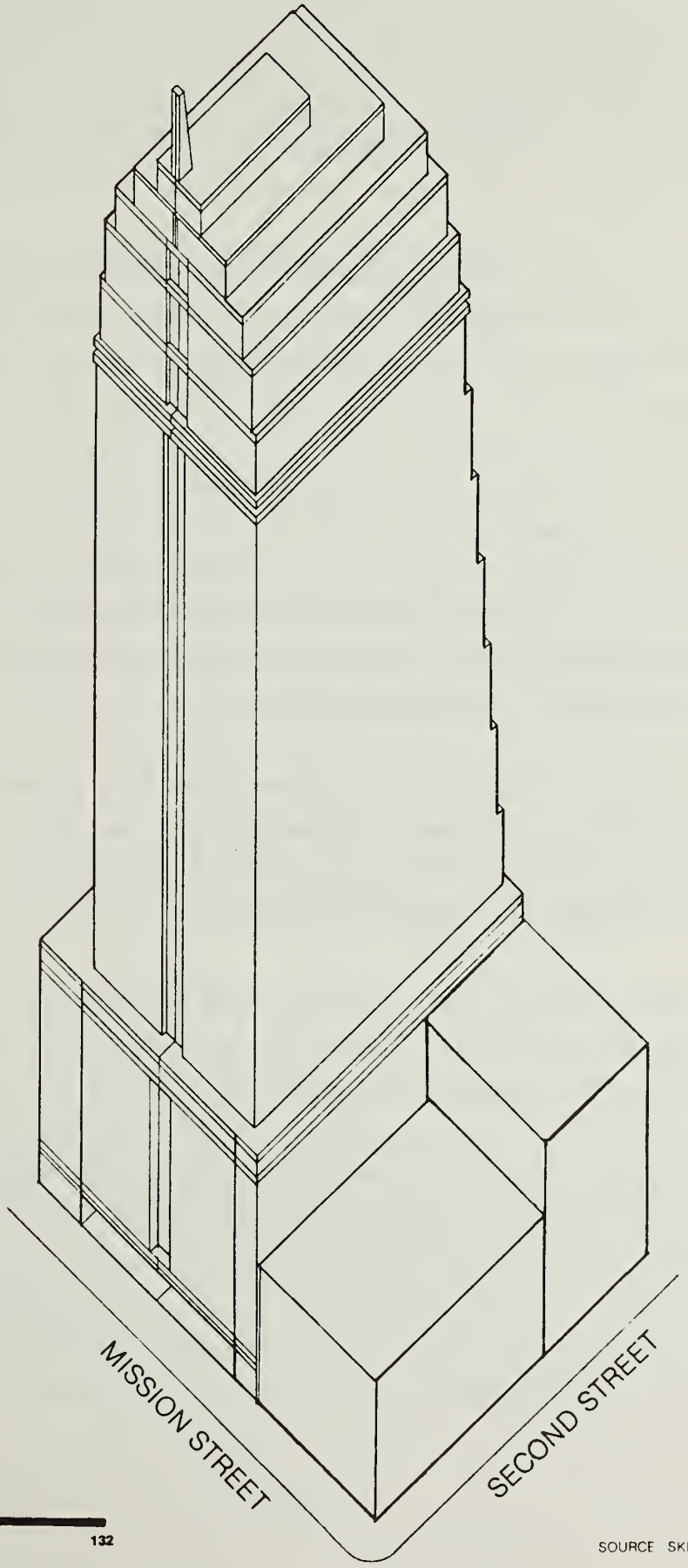
The new structure in this alternative would be the same as in the proposed project, rise 33-stories (500 feet) above Mission Street. The general bulk measurements and facade treatment would be essentially the same as with the proposed project. The FAR for this alternative would be 16.7:1 compared to 16.8:1 for the proposed project (see Figure 33, page 145).

IMPACTS

Office and retail space in this alternative would be about 0.3% smaller than the proposed project, resulting in essentially the same impacts associated with an intensification of land uses. The new structure in this alternative would continue to be higher and bulkier than the prevailing scale of older development in the project area. This alternative would result in the demolition of four existing buildings, but would preserve the one structure on the project site which is located in the New Montgomery-Second Street Conservation District and would, thus, have decreased impacts on architectural and historic resources. The project would not result in excavation of the portion of the project site under the 595 Mission Street building; that portion of the site directly at the corner of Mission and Second Streets. This would result in a decrease in the potential for finding cultural remains during excavation. The project would continue to act as an inducement to future growth in the project vicinity.

SECOND AND MISSION PROJECT
ALTERNATIVE D
AXONOMETRIC VIEW

FIGURE 33



FEET
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SOURCE: SKIDMORE, OWINGS AND MERRILL

There would be a total of 4,300 daily person trips generated by this alternative. Transportation impacts associated with increased travel demand would be 6.2% less than in the proposed project, proportional to the decrease in overall travel demand associated with the alternative. Despite the decrease in travel demand, impacts at adjacent intersections associated with cumulative downtown development would not differ from the proposed project, since the increase would be too small to measure.

Estimated net new parking demand would be 186 spaces, three spaces (1.6%) less than the estimated project parking demand. Occupancy in the off-street parking in the project vicinity would increase from 87% to 89% with this alternative, the same as with the proposed project.

Employment generated by the alternative, both direct and indirect, would decrease from 5,263 jobs in the proposed project to 5,247 jobs in this alternative. On-site construction related employment would remain the same with this alternative as with the proposed project. Due to an increase in office space under the Office Affordable Housing Production Program this alternative would generate a requirement for 141 housing units, 1 more than the 140 required for the proposed project.

Air quality impacts from this alternative would be about 1.6% less than for the proposed project due to reduction in travel associated with the alternative. Construction noise impacts would be the same intensity (pile driving would still be required) and duration since the building would be essentially the same size.

Since the building mass for this alternative would be essentially the same as for the proposed project, shadow impacts of this alternative would also be essentially the same as those described for the proposed project on pages 75 to 93.

This alternative, which would not include the demolition of 595 Mission building, would be very similar in form to that of the proposed project. The wind impacts of this alternative would be similar to those of the proposed project.

REASONS FOR REJECTION

This alternative has been rejected by the project sponsor since the preservation of the 595 Mission building would not be consistent with the sponsor's objective of providing an exciting, usable open space area with maximum sunlight exposure at the corner of Second and Mission Streets.

E. ALTERNATIVE FIVE: PROJECT WITH MAXIMUM TDRs

This alternative would be a project similar to the proposed project, but larger due to increased height at the corner of Second and Mission Streets. The corner portion of the building, three stories in the proposed project, would be six stories in this alternative in an attempt to better match the height of the existing streetwall along Second Street and to provide project open space with minimal shadowing.

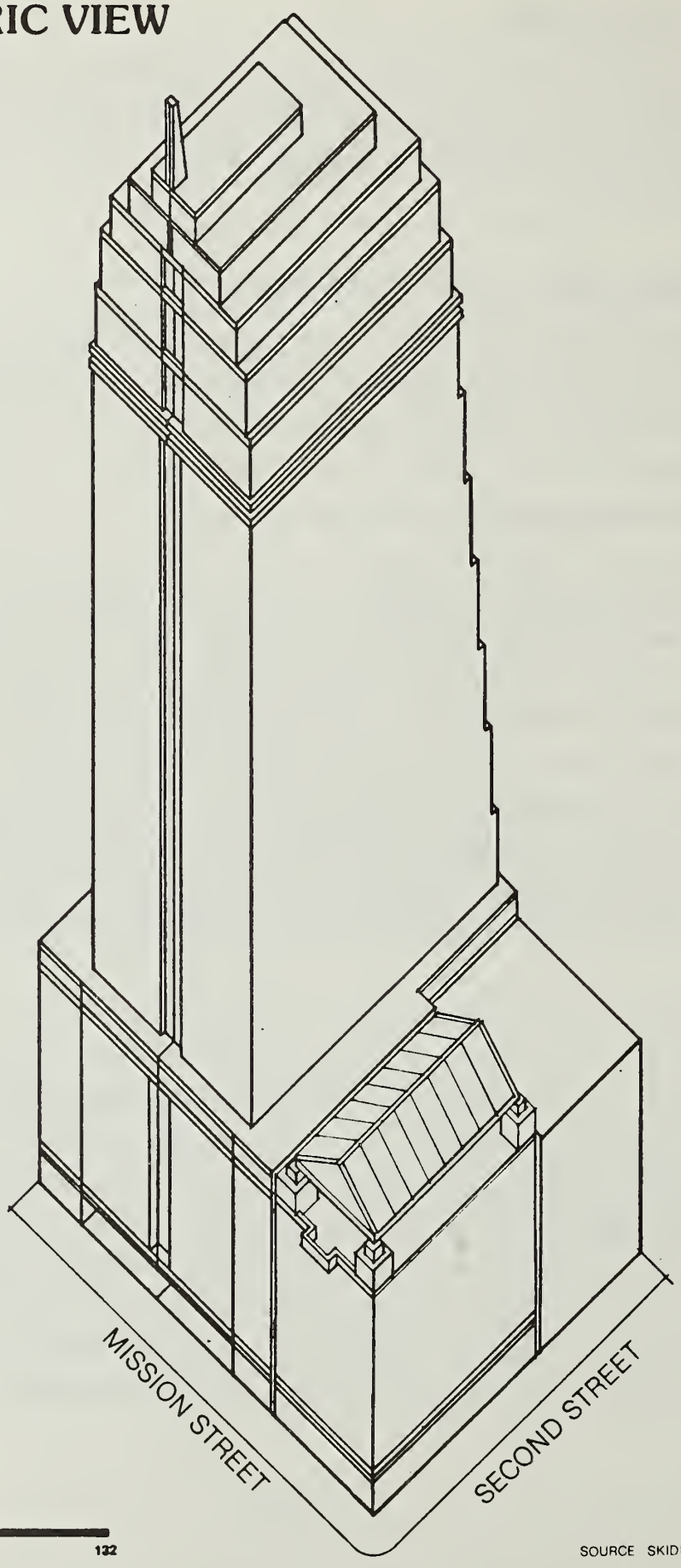
Alternative Five would be essentially the same as the proposed project but would be higher at the corner of Second and Mission Streets and would have more office space. The project would usually look the same as the proposed project including the same general maximum heights, bulk measurements and facade materials. Total constructed area of the project would increase by 4% due to increase in office floor area in the corner portion of the project. The amount of gross square feet of office space would increase from 454,918 in the proposed project to 477,118 in this alternative. Retail, open space and parking area would remain unchanged from the proposed project. The FAR for the alternative would be 17.8:1, compared to 16.8:1 with the proposed project (see Figure 34, page 148).

IMPACTS

Office and retail area in this alternative would be 4.8% larger than the proposed project, resulting in a proportional increase in impacts associated with an intensification of land uses. Since the height of the corner portion of the project, located in the New Montgomery-Second Street Conservation District, would be higher than that in the proposed project and more closely related to adjacent buildings, this alternative would have less impact on building scale and architectural character in the project vicinity than the proposed project. However, the building tower in this alternative would continue to be higher and bulkier than the prevailing scale of older development in the project area.

SECOND AND MISSION PROJECT
ALTERNATIVE E
AXONOMETRIC VIEW

FIGURE 34



FEET
0 32 64 132

SOURCE SKIDMORE, OWINGS AND MERRILL

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This alternative, like the proposed project, would result in demolition of all existing buildings on the project site and construction of a six-story structure with rooftop open space (three-story in the proposed project) in the New Montgomery-Second Street Conservation District and would, thus, have the same impacts on architectural and historic resources as the proposed project. As in the proposed project, this alternative would result in excavation of the project site and, thus, could have potential impacts on archaeological resources. Shadow impacts associated with the alternative would be essentially the same as with the proposed project. As with the proposed project, the alternative would result in exceedences of the comfort criterion for both pedestrian and seating areas. This alternative would result in an exceedance of the 26 mph hazard criterion on sidewalks on Minna Street There would be no exceedence of the hazard criterion with the proposed project. The growth inducing impacts of this alternative would be similar to those for the proposed project.

There would be a total of 4,985 net new daily person trips generated by this alternative. Transportation impacts associated with increased travel demand would be 8.8% more than in the proposed project, proportional to the increase in overall travel demand associated with the alternative. The percentage increase in net new travel demand is greater than the percentage increase in total square footage because the incremental increase in office space is a greater percentage of net new square footage than total square footage. Despite this increase in travel demand, impacts at nearby intersections associated with cumulative downtown development would not differ from the proposed project, since the increase would be too small to measure.

Estimated net new parking demand would be 201 spaces, 12 spaces (6.3%) more than the estimated parking demand for the proposed project. Occupancy in off-street parking lots and garages in the project vicinity would increase from 87% to 90%, compared to the increase from 87% to 89% with the proposed project.

Employment generated by this alternative, both direct and indirect, would increase from 5,216 jobs in the proposed project to 5,431 jobs in this alternative. On-site construction related employment would remain essentially the same with this alternative. Under the Office Affordable Housing Production Program, this alternative would generate a requirement for 147 housing units, 7 more than the 140 required for the proposed project.

Air quality impacts from this alternative would be about 4.8% more than for the proposed project due to the reduction in travel associated with the alternative. Construction noise impacts would be the same intensity (pile driving would still be required) and duration as with the proposed project.

This alternative would cause wind speed changes similar to those associated with the proposed project. Winds at sidewalk locations would range from 8 to 17 mph, compared to a range of 7 to 17 mph for the proposed project. Of the 18 locations within sidewalk areas, 12 would exceed the 11 mph comfort criterion for pedestrian areas, the same as for the proposed project. Winds within the rooftop plaza would range from 3 to 11 mph, with 4 of 5 measurement points exceeding the 7 mph comfort criterion for sitting areas. The hazard criterion, an hourly average wind of 26 mph no more than one hour per year, would be exceeded at one location along Minna Street (location 15, Figure B-1, Appendix B, page A-35.

REASONS FOR REJECTION

This alternative has been rejected by the project sponsor because it violates the 26 mph hazard criterion for wind in pedestrian areas.

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562 Mission Street
San Francisco, CA 94105

Pacific Telephone & Telegraph Co.
71-85 - 2nd Street
San Francisco, CA 94105

APPENDICES

APPENDIX A

DEPARTMENT OF CITY PLANNING

450 McALLISTER STREET • SAN FRANCISCO, CALIFORNIA 94102

NOTICE THAT AN ENVIRONMENTAL IMPACT REPORT IS DETERMINED TO BE REQUIRED

ate of this Notice: February 7, 1986

ead Agency: City and County of San Francisco, Department of City Planning
450 McAllister Street - 5th Floor, San Francisco, CA 94102

gency Contact Person: Sally E. Maxwell Telephone: (415) 558-5261

roject Title: 85.414E:
Second and Mission St.
Office Tower

Project Sponsor:
Markborough California Properties

Project Contact Person: David Fitzpatrick

roject Address: 101 Second Street between Mission and Minna

ssessor's Block(s) and Lot(s): Lots 72, 73, 74, 75, in Assessor's Block 267

ity and County: San Francisco

roject Description: Construct a 534 foot-tall, 35-story, 496,080 gross sq. ft. (gsf) building with about 488,250 gsf of office, 2,770 gsf of retail, 12,640 gsf of open space and 100 basement level parking spaces, after demolishing four buildings with about 111,200 gsf of office and 25,000 gsf of retail.

HIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL MPACT REPORT IS REQUIRED. This determination is based upon the criteria of the uidelines of the State Secretary for Resources, Sections 15063 (Initial Study), 15064 Determining Significant Effect), and 15065 (Mandatory Findings of Significance), and he following reasons, as documented in the Environmental Evaluation (Initial Study) for he project, which is attached.

eadline for Filing of an Appeal of this Determination to the City Planning ommission: February 18, 1986.

n appeal requires: 1) a letter specifying the grounds for the appeal, and;
2) a $35.00 filing fee.

Sally E. Maxwell
for BARBARA W. SAHM, Environmental Review Officer

WS:eh
362A

ER5 6/85

SECOND AND MISSION STREET OFFICE TOWER

INITIAL STUDY

85.414E

I. PROJECT DESCRIPTION

The proposed Second and Mission Street Office Building project would demolish four existing office and retail buildings and construct a 500-foot tall, 35-story building with a 34-foot upper tower extension, containing office and retail commercial uses, open space and below-grade parking. The project is proposed to be constructed on Assessor's Block 3721, lots 72, 73, 74 and 75, and would have a site area of 27,560 square feet. The project site is at the southeast corner of the intersection of Second Street and Mission Street, one block southwest of the Transbay Terminal, one block south of Market Street and three blocks north of the James Lick Freeway (I-80)(See Figure 1). The site is in a C-3-O (Downtown Office) District and a 150-S and 500-S Height and Bulk Districts. The basic permitted floor area ratio (FAR) is 9:1 and the maximum allowable FAR, including transferable development rights (TDRs), is 18:1.

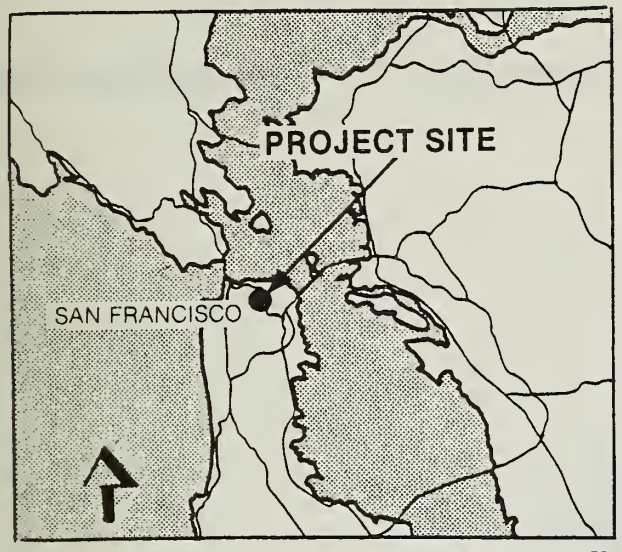
Four buildings comprising 111,200 gsf of office space and 25,000 gsf of retail space currently exist onsite. The building on Lot 72 is in the New Montgomery-Second Street Conservation District but is not rated as a significant or contributory building. All four buildings would be demolished.

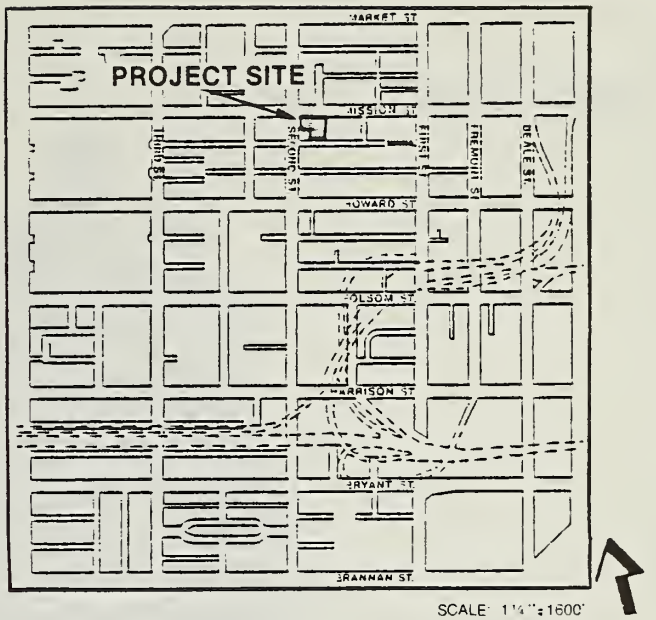
The total constructed area of the proposed project would be 585,000 gross square feet (gsf), including all office, retail, open space, parking and mechanical area. The total gross floor area, as defined by the City Planning Code, would be 496,080, consisting of 482,252 gsf of office space on 35 floors and 2,771 gsf of retail and food service space on the ground level. The project would include about 12,638 gsf of open space in a plaza and atrium fronting on Second Street and with direct access to the retail/food service area on the ground floor of the building. The project would include 100 parking spaces on two floors, below-grade, consisting of 44,391 gsf of area. The Planning Code requires five freight loading spaces and no off-street parking spaces for a building of this size in a C-3 District. The FAR for the proposed project would be 18.0:1. Excluding existing uses, the proposed project would include an increase of 371,052 gsf of net new office space and a decrease of 22,229 gsf of net new retail space.

SITE LOCATION MAP

FIGURE 1

SOURCE EIP ASSOCIATES

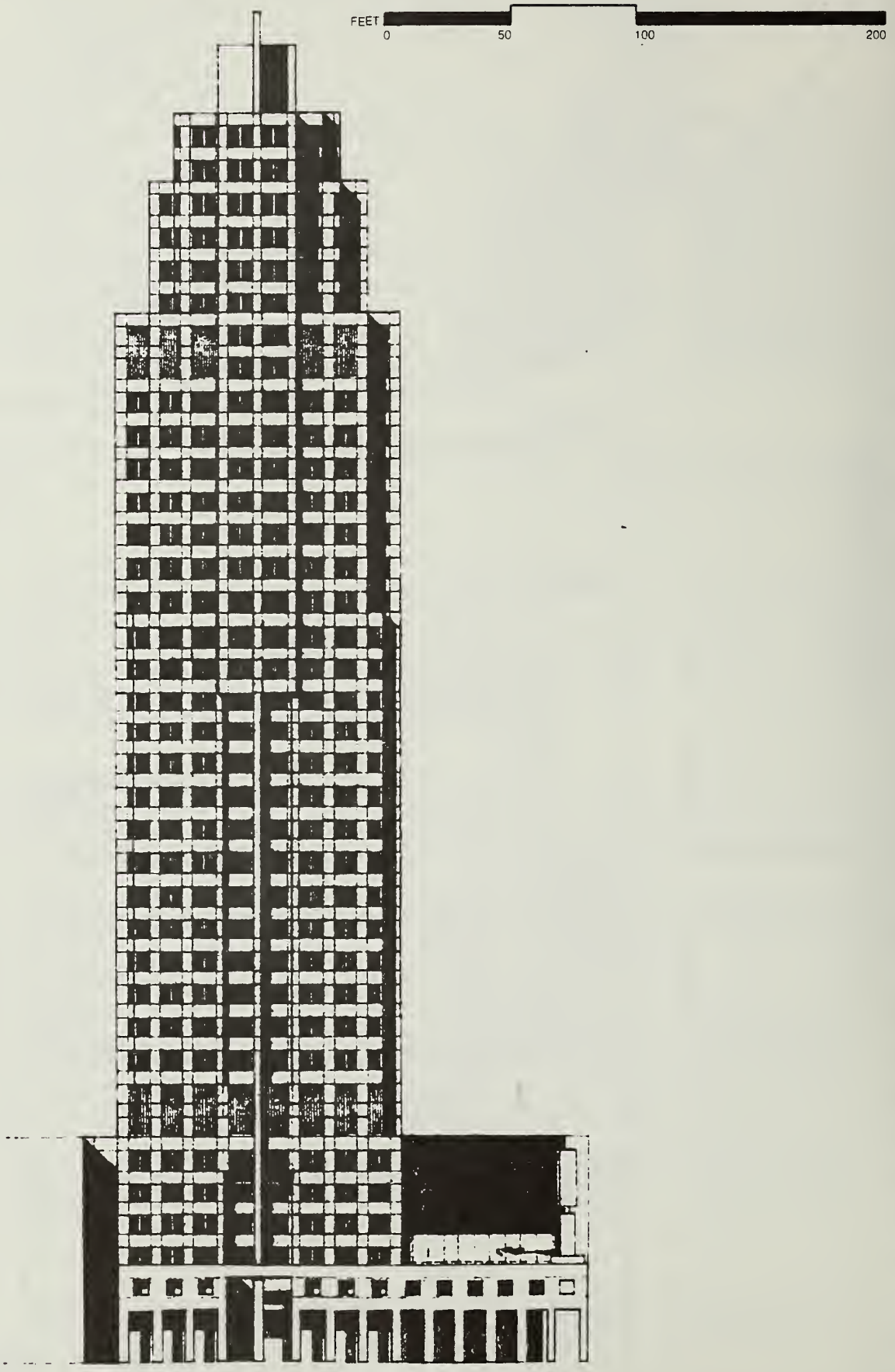




MISSION STREET ELEVATION

FIGURE 2

SOURCE: SKIDMORE, OWINGS & MERRILL



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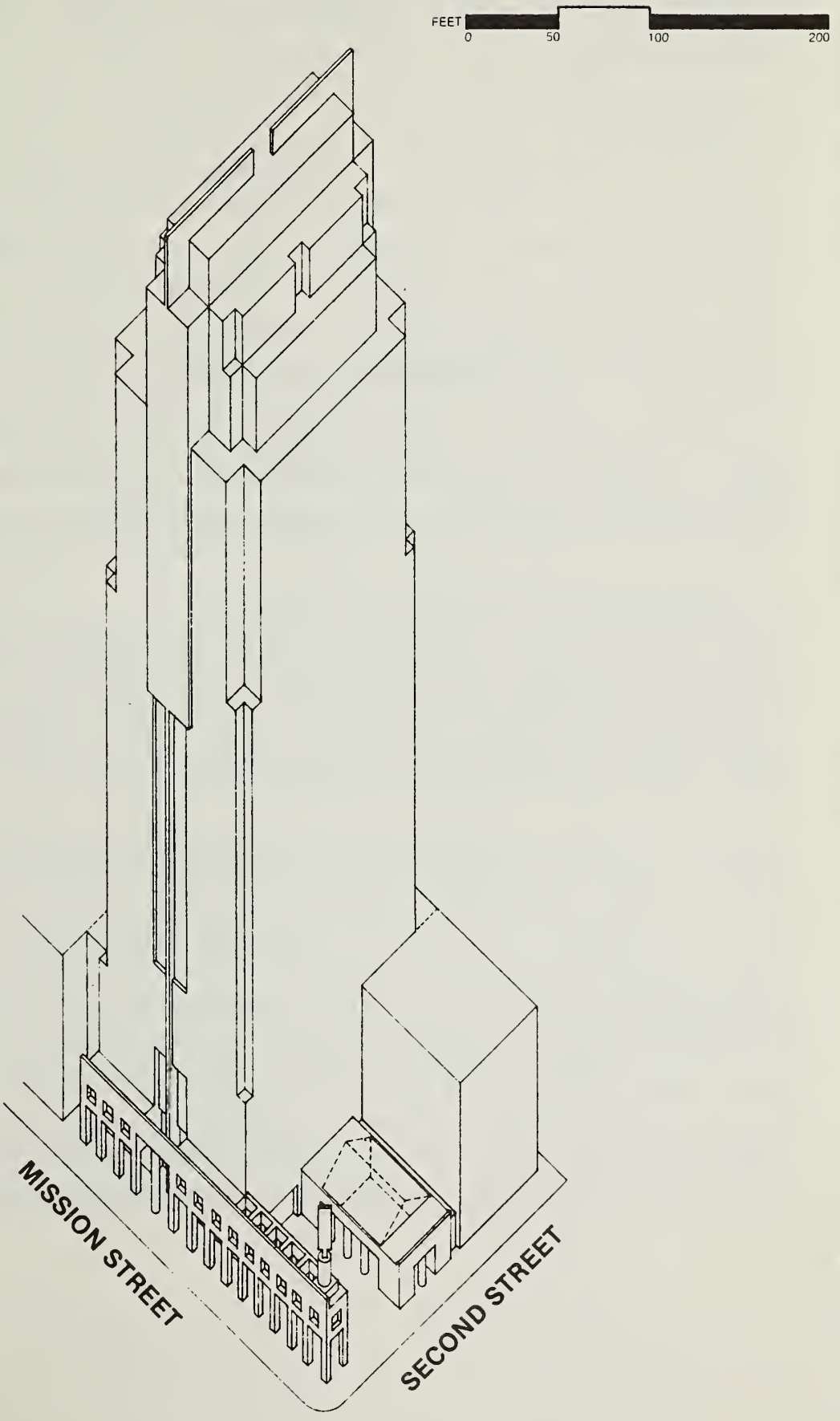
AXONOMETRIC VIEW

FIGURE 3

SOURCE: SKIDMORE, OWINGS & MERRILL



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Construction of the proposed project would be completed in approximately 18 months; project cost is estimated at $36,100,000. The project sponsor is Markborough California Properties and the project architects are Skidmore, Owings & Merrill, Architects/Engineers.

II. INTRODUCTION

A tiered EIR will be prepared for the proposed Second and Mission project pursuant to Sections 21093 and 21094 of the Public Resources Code, California Environmental Quality Act (CEQA). The EIR will be tiered from the Downtown Plan EIR (EE81.3, certified October 18, 1984) and will analyze project-specific impacts. The EIR will discuss potentially significant effects that were not examined in the Downtown Plan EIR and will include applicable mitigation measures for site specific effects. Cumulative impacts of the development forecast in the C-3 Districts to the year 2000 are addressed in the Downtown Plan EIR. That cumulative analysis will not be repeated in the EIR for this project. The Downtown Plan EIR may be examined at the Department of City Planning, 450 McAllister Street; the San Francisco Main Library; and various branch libraries.

A. TIERED ENVIRONMENTAL IMPACT REPORT

Where a prior environmental impact report has been prepared and certified for a program, plan, policy or ordinance, the lead agency for a later project that meets the specified requirements is required (as of January 1, 1986) to examine significant effects of the latter project upon the environment, with exceptions, by using a tiered report.

Agencies are required to tier EIRs which they prepare for separate but related projects including general plans, zoning changes and development projects, in order to avoid repetitive discussions of the same issues in successive EIRs and ensure that EIRs prepared for the later projects which are consistent with a previously approved policy, plan, program, or ordinance concentrate on environmental effects which may be mitigated or avoided in connection with the decision on each later project. Tiering is appropriate when it helps a public agency to focus on the issues ripe for decisions at each level of environmental review and in order to exclude duplicative analysis of environmental effects examined in previous environmental impact reports. Environmental impact reports shall be tiered whenever feasible, as determined by the lead agency.

The law directs that where a prior EIR has been prepared and certified as noted above, the lead agency shall examine significant effects of the later project on the environment by using a tiered EIR, except that the report on the later project need not examine those effects which were either mitigated or avoided as a result of the prior EIR, or, examined at a sufficient level of detail in the prior EIR to enable those effects to be mitigated or avoided by site-specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project.

The Initial Study is to assist the lead agency in making the determinations required by tiering.

III. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

A. EFFECTS FOUND TO BE POTENTIALLY SIGNIFICANT

The Second and Mission project is examined in this Initial Study to identify potential effects on the environment. The cumulative impacts of growth in the C-3 Districts to the year 2000 were adequately analyzed in the Downtown Plan EIR. That analysis of cumulative impacts remains current and valid and the determination during certification of that EIR regarding significant effects remains unchanged. Some project-specific potential effects have been determined to be potentially significant, and will be analyzed in an environmental impact report (EIR). They include: relationship of the proposed building to the Master Plan; urban design; visual quality; localized transportation; construction-related noise impacts; traffic-generated air quality impacts; shadow and wind impacts on public spaces; archaeological impacts; and architectural/historic resources related to demolishing a building in a conservation district.

B. EFFECTS FOUND NOT TO BE SIGNIFICANT

Some environmental effects would be either insignificant or measures incorporated into the project design would mitigate the impacts to insignificant levels. These require no further environmental analysis and will not be addressed further in the EIR.

Land Use: The project would replace four existing office and retail buildings with office, retail, open space and parking uses similar to those in the project area.

Visual Quality: The proposed project would not generate any light or glare impacts on other properties.

Operational Noise: The project would not be affected by ambient noise levels due to the inclusion of noise insulation features in the project design. Project operation, including traffic generated by the project, would not significantly increase the ambient noise levels in the project vicinity.

Air Quality/Climate: Construction of the proposed project would not create objectionable odors, nor would it involve burning of any materials. Construction activities may cause a temporary violation of ambient air quality standards; a measure to reduce emissions generated during construction activities to an insignificant level is included in the project (see p. 26).

Biology: The proposed project would not affect a any rare or endangered species or habitats and would not interfere with any resident or migratory species.

Geology/Topography: A geo-technical report would be prepared by a California-licensed soils engineer. Building construction would conform to the recommendations of that report. Measures to mitigate potential impacts associated with excavation and dewatering are included in the project (see p. 26).

Water: The proposed project would not affect water quality or other water resources.

Utilities/Public Services: Increased demand for public services and utilities attributable to the proposed project would not require additional personnel or equipment and would be too small to not make a noticeable contribution to cumulative service needs.

Hazards: The proposed project would not be affected by hazardous uses or health hazards in the area, nor would there be a potential for health hazards. An evacuation and emergency response plan would be developed by the project sponsor as part of the project.

Population: The project would comply with the Office Affordable Housing Production Program ordinance. Cumulative and indirect effects including those of the project are addressed in the EIR prepared for the Downtown Plan.

Energy: The project would be constructed to conform with the energy requirements of Title 24. It would not encourage activities that would result in the wasteful use of energy or have a substantial effect on a natural resource.

III. ENVIRONMENTAL SETTING

A. COMPATIBILITY WITH EXISTING ZONING AND PLANS.

	Not Applicable	Discussed
1. Discuss any variances, special authorizations, or changes proposed to the City Planning Code or Zoning Map, if applicable.	___	X
*2. Discuss any conflicts with the Comprehensive Plan of the City and County of San Francisco, if applicable.	___	X
*3. Discuss any conflicts with any other adopted environmental plans and goals of the City or Region, if applicable.	___	X

The proposed project would comply with the City Planning Code requirements concerning height and use in the C-3-O (Downtown Commercial Office) District and the 150-S and 500-S Height and Bulk Districts in which the proposed 35-story, 499-foot building would be located. However, the proposed project would exceed the maximum average floor area for the upper tower portion of the building by 342 square feet per floor. The proposed project would meet all other bulk limitations of the Code.

The relationship of the proposed project to the policies of the Master Plan, including the Downtown Plan, and provisions of the City Planning Code and will be discussed in the EIR. The project would not conflict with other adopted plans and goals; however, issues related to the compatibility with zoning and plans will be discussed in the EIR.

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

B. ENVIRONMENTAL EFFECTS Could the project:

	Yes	No	Discussed
1. Land Use.			
*a. Disrupt or divide the physical arrangement of an established community?	___	X	X
b. Have any substantial impact upon the existing character of the vicinity?	___	X	X

The proposed project site is located in the C-3-0 District, south of Market Street, covered in the Downtown Plan. This area has historically supported printing, wholesaling and light industrial uses but is now converting to office and office support uses. The proposed project, containing office and retail uses, would constitute an increase in the intensity of the prevailing land uses on the site and in the surrounding area. These issues will be discussed further in the EIR.

The project site is located at the intersection of Second and Mission Streets, a traffic and transit intersection. The intersection of Market and Second Streets is located about 600 feet north of the site and the Transbay Terminal is about 800 feet northeast. Buildings to the north and northeast are mainly midrise and tall office buildings, interspersed with three- to five-story, older retail and office buildings, some of which are rated as architecturally significant structures.

South of and adjacent to the site is the Rapp Building, rated "Category I" (architecturally significant) in the Downtown Plan. Across Second Street is the Stevenson Building and north across Mission Street is the Pacific Telephone and Telegraph Building.

The proposed project would be similar in bulk and height to other large office structures in the project area; however, the project would be larger than any of the buildings on the project site or lying directly adjacent to it. At 499 feet high, the proposed building would be 425-450 feet higher than the buildings currently on site and 350-400 feet higher than the prevailing building heights in the project vicinity. These issues will be discussed further in the EIR.

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

	Yes	No	Discussed
2. Visual Quality			
*a. Have a substantial, demonstrable negative aesthetic effect?	___	___	X
b. Substantially degrade or obstruct any scenic view or vista now observed from public areas?	___	___	X
c. Generate obtrusive light or glare substantially affecting other properties?	___	___	X

Views from the site are limited by existing high-rise buildings; no long-range views of the San Francisco Bay or other landmarks are available. The EIR will discuss the proposed project's potential for blockage of views of major scenic areas and intrusion into the existing skyline. The proposed project would not include any reflective glass and would not cause any glare impacts on nearby pedestrians or autos. The EIR will not discuss glare impacts of the proposed project.

The EIR will discuss the proposed project's relationship to the urban design policies of the Downtown Plan and the objectives and policies of the Urban Design Element of the Master Plan.

	Yes	No	Discussed
3. Population			
*a. Induce substantial growth or concentration of population?	___	X	X
*b. Displace a large number of people (involving either housing or employment)?	___	X	X
c. Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?	___	X	X

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

The proposed project would not construct any residential units and would not result in the demolition of any residential units. This issue will not be discussed further in the EIR.

The six businesses on the site currently employ 152 people. Those businesses will be required to move when the existing buildings are demolished. This issue will be discussed further in the EIR.

The project would generate a demand for 50 dwelling units according to the Office Affordable Housing Production Program formula. The project must comply with the OAHPP, Ordinance No. 358-85. Cumulative and indirect effects including those of this project are addressed, and may be found in, the Downtown Plan EIR. That analysis will not be repeated in the Second and Mission Street EIR.

The Downtown Plan EIR concluded that population effects resulting from development in the C-3 Districts under the Downtown Plan would not be significant. That conclusion would remain true with the project. The Downtown Plan EIR (EE81.3, Final EIR certified October 18, 1984) may be examined at the Department of City Planning, 450 McAllister Street, 6th Floor; the San Francisco Main Library and various branch libraries.

	Yes	No	Discussed
4. Transportation/Circulation			
*a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?	___	X	X
b. Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?	___	X	X
c. Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?	___	X	X
d. Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	___	X	X

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

The proposed project could cause traffic hazards and increases in traffic, transit and parking demand. The traffic entering and exiting the proposed project's parking garage would affect the traffic on Mission and Second Streets, both Transit Preferential Streets. The EIR will discuss traffic increases and movements as they relate to the operation of the street and freeway network in the project vicinity, in particular, the I-80 and Highway 101 ramps in the vicinity. Impacts on transit operations on Mission and Second Streets will also be discussed.

The proposed project would provide parking for 100 automobiles. There are no parking spaces currently on the site. The generation of parking demand and the relationship to the project's supply will be discussed in the EIR.

Impacts of construction traffic will also be discussed in the EIR.

The cumulative transportation effects of development in the C-3 Districts including the project are analyzed in the Downtown Plan EIR. The Planning Commission in certifying the Downtown Plan EIR determined that cumulative transportation impacts would have a significant impact. The cumulative analysis in the Downtown Plan regarding transportation will be incorporated by reference into the Second and Mission EIR, and the project effects in relation to cumulative impacts will be discussed. The analysis in the Downtown Plan EIR remains current regarding future and project conditions.

	Yes	No	Discussed
5. Noise			
*a. Increase substantially the ambient noise levels for adjoining areas?	___	___	X
b. Violate Title 25 Noise Insulation Standards, if applicable?	___	X	X
c. Be substantially affected by existing noise levels?	___	X	X

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

Project Operation

The noise environment of the site, like all of downtown San Francisco, is dominated by vehicular traffic noise. The Downtown Plan EIR indicates a day-night average noise level (Ldn) of 71 dBA on Second Street freeway adjacent to the site and 72 dBA on Mission Street adjacent to the site in 1984.[1,2] The Environmental Protection Element of the Master Plan contains guidelines for determining the compatibility of various land uses with different noise environments. For office uses, the guidelines recommend no special noise control measures in an exterior noise environment up to an Ldn of 70 dBA. For noise levels of 75 dBA and above, the guidelines recommend an analysis of noise reduction requirements and inclusion of noise insulation features in the building design. The project sponsor has indicated that noise insulation measures would be included as part of the design (p. 27). The proposed structure would not include housing, so Title 25 Noise Standards would not be applicable.

Project operation would not result in perceptibly greater noise levels than those existing in the area. The amount of traffic generated by the project during any hour of the day, and cumulative traffic increases at the time of project completion, would cause traffic noise levels to increase by one dBA or less. To produce a noticeable increase in environmental noise, a doubling of existing traffic volume would be required; traffic increases of this magnitude would not occur with anticipated cumulative development including the project.[3]

The project would be required to comply with the San Francisco Noise Ordinance, San Francisco Police Code Section 2909, "Fixed Source Noise Levels," which regulates mechanical equipment noise. The project site and surrounding area are within a C-3-0 District. In this district, the ordinance limits equipment noise levels at the property line to 70 dBA between 7 a.m. and 10 p.m. and 60 dBA between the hours of 10 p.m. and 7 a.m. During lulls in traffic, mechanical equipment generating 70 dBA could dominate the noise environment at the site. The project engineer and architect would include design features in the building to limit mechanical equipment noise levels to 60 dBA. As equipment noise would be limited to 60 dBA to meet the nighttime limit, it would not be perceptible above the ambient noise levels in the project area. Discussion of operational noise will not be included in the EIR.

Impacts of construction noise will be discussed in the EIR.

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[1]San Francisco Department of City Planning, Downtown Plan Environmental Impact Report (EIR), EE81.3, certified October 18, 1984. Vol. 1, Table IV.J.2.

[2]dBA is a measure of sound in units of decibels (dB). The "A" denotes the A-weighted scale, which simulates the response of the human ear to various sound frequencies.

Ldn, the day-night average noise level, is a noise measurement based on human reaction to cumulative noise exposure over a 24-hour period, taking into account the greater annoyance of nighttime noises; noise between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise.

[3]See Downtown Plan EIR, (Vol. 1), Continuous Section IV.E. generally and Section IV.J., pp. IV.J.8-18. Increases of 1 dBA or less in environmental noise are not noticeable by most people outside a laboratory situation (National Academy of Sciences, Highway Research Board, Research Report No. 117 (1971)). (See also FHWA Highway Traffic Noise Prediction Model underlines, Report #FHWA-RD-77-108, December 1978, p.8, regarding doubling of traffic volumes producing increases of 3 dBA or more, which are noticed by most people.)

	Yes	No	Discussed
6. Air Quality/Climate			
*a. Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	X	___	X
*b. Expose sensitive receptors to substantial pollutant concentrations?	___	X	X
c. Permeate its vicinity with objectionable odors?	___	X	X
d. Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?	___	___	X

Two types of air quality impacts could be expected from the proposed building: long-term impacts related to use and operation of the project, and short-term impacts from

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*Derived from State EIR Guidelines, Appendix G, normally significant effect.

construction activity. Project-related and cumulative traffic can be expected to contribute to existing air pollution near the project site and will be discussed in the EIR.

Construction activities would temporarily affect local air quality. Demolition and construction activities would not involve burning of any materials and would not create objectionable odor. Demolition, grading and construction activities would affect local air quality, however, by increasing total suspended particulates (TSP). There are no identified sensitive receptors in the vicinity of the project site. The project sponsor has stipulated a mitigation measure to reduce dustfall and particulates (page 28); there will be no further discussion of construction-related impacts in the EIR.

The cumulative effects on air quality of traffic emissions from traffic generated by development in the C-3 Districts including the project are analyzed in the Downtown Plan EIR. The Planning Commission in certifying the Downtown Plan EIR determined that cumulative air quality impacts would have a significant impact. The cumulative analysis in the Downtown Plan EIR regarding air quality will be incorporated by reference and the project effect in relation to cumulative effects will be discussed. The analysis and conclusions of the Downtown Plan EIR remain current regarding future and project conditions.

The proposed project could have shading effects on nearby public spaces; sun-shadow and wind will be analyzed in the EIR.

	Yes	No	Discussed
7. Utilities/Public Services			
*a. Breach published national, state or local standards relating to solid waste or litter control?	___	X	___
*b. Extend a sewer trunk line with capacity to serve new development?	___	X	___
c. Substantially increase demand for schools, recreation or other public facilities?	___	X	X
d. Require major expansion of power, water, or communications facilities?	___	X	X

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

The Downtown Plan EIR concluded that demand for utilities and public services resulting from development in the C-3 Districts under the Downtown Plan would not be significant. The Downtown Plan EIR (EE81.3, Final EIR certified October 18, 1984) may be examined at the Department of City Planning, 450 McAllister Street, 6th Floor; the San Francisco Main Library and various branch libraries. No analysis of community services is necessary in the EIR.

	Yes	No	Discussed
8. Biology			
*a. Substantially affect a rare or endangered species of animal or plant or the habitat of the species?	___	X	X
*b. Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	___	X	___
c. Require removal of substantial numbers of mature, scenic trees?	___	X	___

The proposed project site is almost completely covered by pavement for parking or existing buildings. There are no rare or endangered species or animal habitats on site. These matters will not be discussed further in the EIR.

9. Geology/Topography			
*a. Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction)?	___	X	X
b. Change substantially the topography or any unique geologic or physical features of the site?	___	X	X

The project site is at about +25 feet, San Francisco City Datum (SFD).[1] Soils at the site are composed of 25-30 feet of sandy artificial fill that overlies 15-20 feet of Bay mud which, in turn, overlies 50-60 feet of dense sand and stiff to very stiff clay and as much as 170 feet of very stiff clay containing dense sand layers.[2] Groundwater levels are expected to be 15-20 feet below the ground surface (0-5 feet SFD).[2]

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

Excavation for the project foundation and two basement levels would be conducted to a depth of about -10 feet SFD. This would reach eight-nine feet below the existing basement slab level of the building on the site and eight-nine feet below the basement slab level of the adjacent Rapp Building. A pile foundation is proposed because the sand fill and Bay mud layers would not provide reliable support for the structure during earthquake conditions. Twelve-to-sixteen-inch square piles driven 55-65 feet below ground surface would produce end-bearing support from the upper dense sand formation. Alternatively, 14- to 16-inch square piles could be driven 110-120 feet below ground surface to derive frictional support from the upper soils and end support from the lower dense sand. This design would reduce the anticipated one to two inches of settlement expected in the shallower pile design. Predrilling to within five to ten feet of design depth would probably be necessary.[2]

Dewatering would be required during excavation. Dewatering could cause some settlement of nearby buildings. The project includes measures to mitigate this potential impact (see page 25).

Pit walls would be shored up to prevent lateral movement during excavation. Adjacent structures might need to be underpinned, should excavation go below the base of their foundations, to avoid such damage as cracking of walls or foundations or sagging of floors. The building contractor must comply with the San Francisco Building Code and the Excavation Standards of the California Occupational Safety and Health Agency. If appropriate, a preconstruction survey of adjacent buildings and streets would be made to establish existing elevations.

Bay mud is a low quality foundation supporting soil. To avoid building settlement and similar problems encountered when building on Bay mud, the project foundations would include use of precast concrete piles driven to dense sands below the Bay mud to support the structure. A preconstruction survey would be needed to establish the potential effects of vibration from pile driving. A vibration monitoring program would be maintained throughout the pile driving phase of construction. The noise and vibration impacts of pile driving will be discussed in the EIR.

The closest active faults to San Francisco are the San Andreas Fault, about 9 miles southwest of Downtown, and the Hayward and Calaveras Faults, about 15 and 30 miles east of Downtown, respectively. The project area would experience Strong (Intensity Level D, general but not universal fall of brick chimneys, cracks in masonry and brick work) groundshaking during a major earthquake.[3] The building would be required to meet current seismic engineering standards of the San Francisco Building Code. (See Mitigation Measures for the project's emergency response plan.) The project would replace buildings on the site built prior to current seismic code standards, and therefore generally more susceptible to earthquake damage.

The project would not have a substantial effect on geology or topography, and this topic will not be discussed in the project EIR.

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[1]San Francisco City Datum establishes the City's "O" point for surveying purposes at approximately 8.6 feet above mean sea level.

[2]Carol Rics, Senior Project Engineer, Woodward-Clyde Consultants, Preliminary Geotechnical Evaluation, Second/Mission Project, San Francisco, California, August 7, 1985.

[3]URS/John A. Blume and Associates, San Francisco Seismic Safety Investigation, 1974. Groundshaking intensities that would result from a major earthquake were projeced and classified on a five-point scale rangeing from E (Weak) through A (Very Violent).

	Yes	No	Discussed
10. Water			
*a. Substantially degrade water quality, or contaminate a public water supply?	___	X	___
*b. Substantially degrade or deplete ground water resources, or interfere substantially with ground water recharge?	___	X	X
*c. Cause substantial flooding, erosion or siltation?	___	X	X

There is no surface water at the site. The depth to groundwater is 15-20 feet, as reported by the geotechnical investigation of the site.

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*Derived from State EIR Guidelines, Appendix G, normally significant effect.

The site is covered by buildings and is 100% impermeable. The proposed project would completely cover the site with either buildings or paved plazas and walkways. Runoff would continue to drain into the combined City storm/sewer system. Should shallow groundwater be encountered during excavation, a mitigation for potential impacts due to dewatering has been included in the proposed project (see page 26).

	Yes	No	Discussed
11. Energy/Natural Resources			
*a. Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	___	X	X
b. Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	___	X	___

Annual energy consumption by existing office and retail uses on the site is 0.5 million kWh of electricity and 204 therms of natural gas, equal to about 5.54 billion Btu at the source.[1,2]

Removal of existing structures would require an unknown amount of energy. Fabrication and transportation of building materials, worker transportation, site development, and building construction would require about 72.2 billion Btu of gasoline, diesel fuel, natural gas, and electricity, equivalent to 12,890 barrels of oil.[3] Distributed over the estimated 50-year life of the project, this would be about 1,444 million Btu per year, or about 2.1% of annual building energy requirements.

New buildings in San Francisco are required to conform to energy conservation standards specified by Title 24 of the California Administrative Code. Documentation showing compliance with these standards is submitted with the application for the building permit and is enforced by the Bureau of Building Inspection.

Table 1, page 21, shows the estimated operational energy which would be used by the project. Project demand for electricity during PG&E's peak electrical load periods, July and August afternoons, would be about 2,850 kW, an estimated .017% of PG&E's load of

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

16,000 MW.[4] Project demand for natural gas during PG&E's peak natural gas load periods, January mornings, would be 50 million Btu per day, or less than one-tenth of one percent of PG&E's peak load of about 3.7 billion cubic feet per day.[4] Annual and peak daily electricity and natural gas consumption are shown in Figures 4 and 5, pp. 22 and 23.

Projections of electrical use for growth that would occur under the Downtown Plan, as analyzed in the Downtown Plan EIR, indicate an increase of about 330-350 million kWh per year between 1984 and 2000, as a result of all new development occurring in the C-3 District. Natural gas consumption is expected to increase by 470 million cubic feet (about five million therms) per year during the same time period, of which 210 cubic feet (about two million therms) per year would be for office uses.

Increased San Francisco energy demands to the year 2000 would be met by PG&E from nuclear sources, oil and gas facilities, hydroelectric and geothermal facilities, and other sources such as cogeneration, wind and imports. PG&E plans to continue receiving most of its natural gas from Canada and Texas under long-term contracts.

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[1] Existing energy use is based on PG&E customer billings for 1985; at-source thermal energy, given in British thermal units (Btu), is based on information received from Markborough California Properties, Inc., November 19, 1985.

[2] The British thermal unit (Btu) is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level. The term "at-source" means that adjustments have been made in the calculation of the thermal energy equivalent (Btu) for losses in energy that occur during generation, transmission, and distribution of the various energy forms as specified in: ERCDC, 1977 Energy Conservation Design Manual for New Non-Residential Buildings, Energy Conservation and Development Commission, Sacramento, California, and Apostolos, J.A., W.R. Shoemaker, and E.C. Shirley, 1978 Energy and Transportation System, California Department of Transportation, Sacramento, California, Project #20-7, Task 8.

[3] Hannon, B., et.al., 1978, "Energy and Labor in the Construction Sector," Science 202:837-847.

[4] San Francisco Department of City Planning, Downtown Plan Environmental Impact Report (EIR), EE81.3, certified October 18, 1984, Vol. 1, pp. IV.G.3-4.

TABLE 1: ESTIMATED PROJECT ENERGY USE[1]

Daily Natural Gas Consumption	
Estimated natural gas consumption per sq. ft.	28.4 Btu[2]
Estimated peak daily natural gas consumption	500 Therms
Monthly Electric Consumption	
Estimated electrical consumption per sq. ft.	1.17 kWh (11,974 Btu)[3]
Estimated total electrical consumption	518,000 kWh (5.3 billion Btu)
Annual Consumption	
Estimated total annual natural gas consumption	45,921 Therms
Estimated total annual electrical consumption	6,214,276 kWh (63.6 billion Btu)
Connected kilowatt load	6,450 Kilowatts
Estimated total annual energy consumption	68.2 billion Btu (12,200 barrels of oil)

[1] Energy use includes space conditioning, service water heating and lighting in accordance with allowable limits under Title 24. Estimated electricity includes an additional .5 watts/sq.ft. kWh, consumed by appliances such as typewriters, computers, coffeemakers, etc. than assumed by Title 24 estimates.

[2] Btu (British thermal unit): A standard unit for measuring heat. Technically, it is the quantity of heat required to raise the temperature of one pound of water one degreee Fahrenheit (251.97 calories) at sea level.

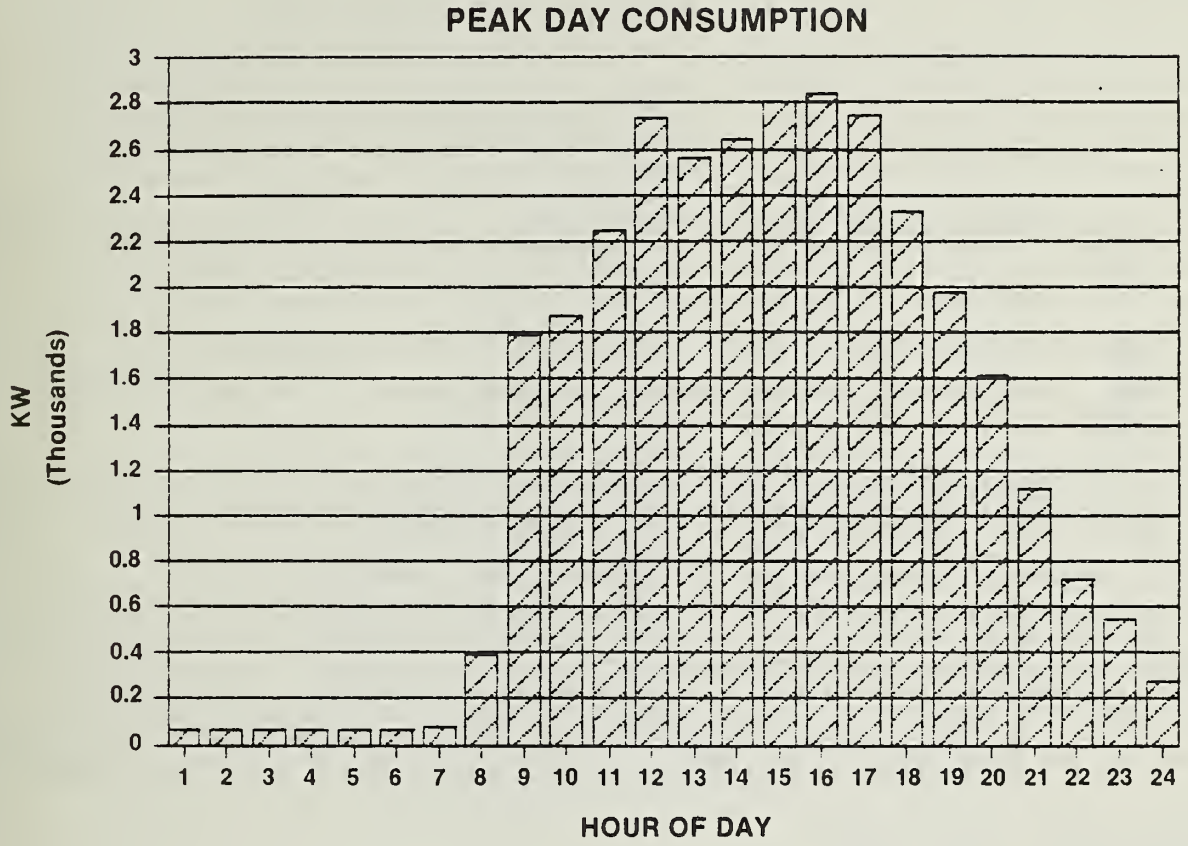
[3] Energy Conversion Factors:

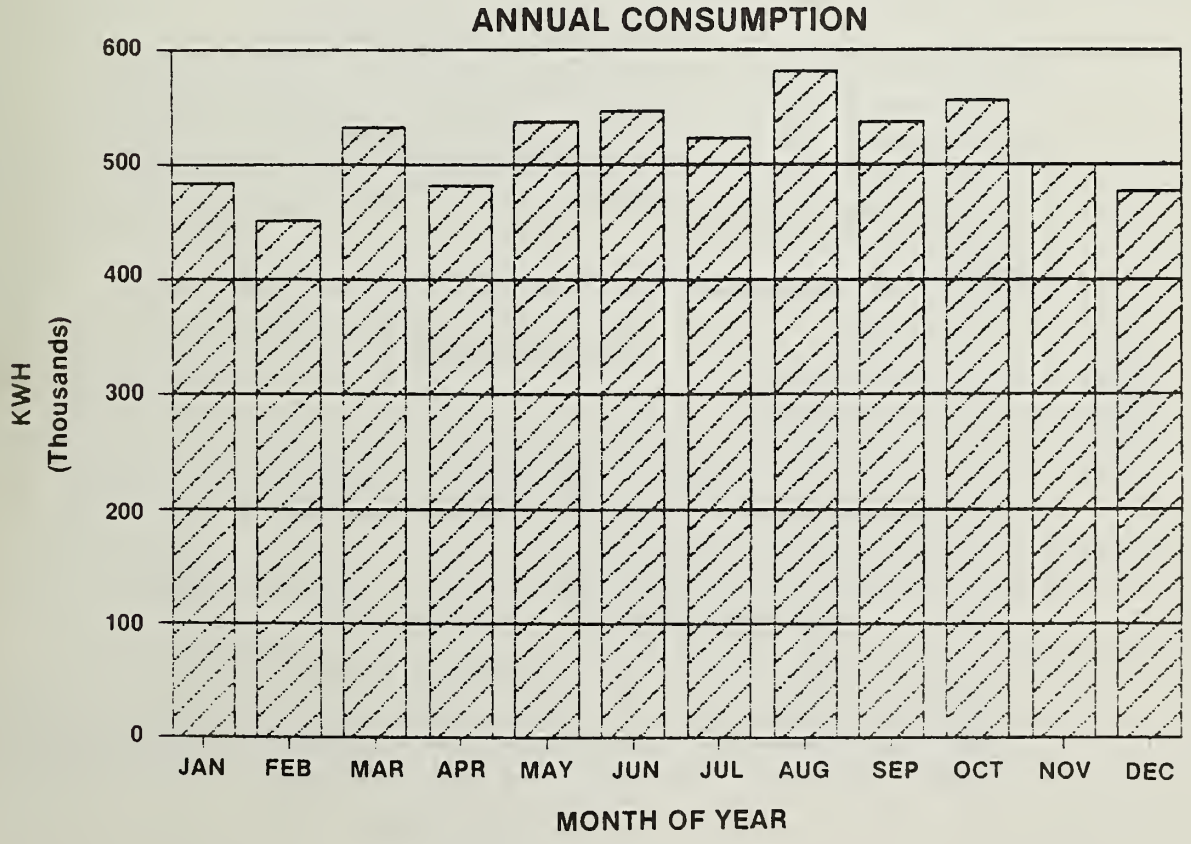
one gallon gasoline	= 125,000 Btu
one kilowatt (kW)	= 10,239 Btu
one therm	= 100,000 Btu
one barrel oil	= 5,600,000 Btu

Source: Skidmore, Owings and Merrill.

ELECTRICITY CONSUMPTION

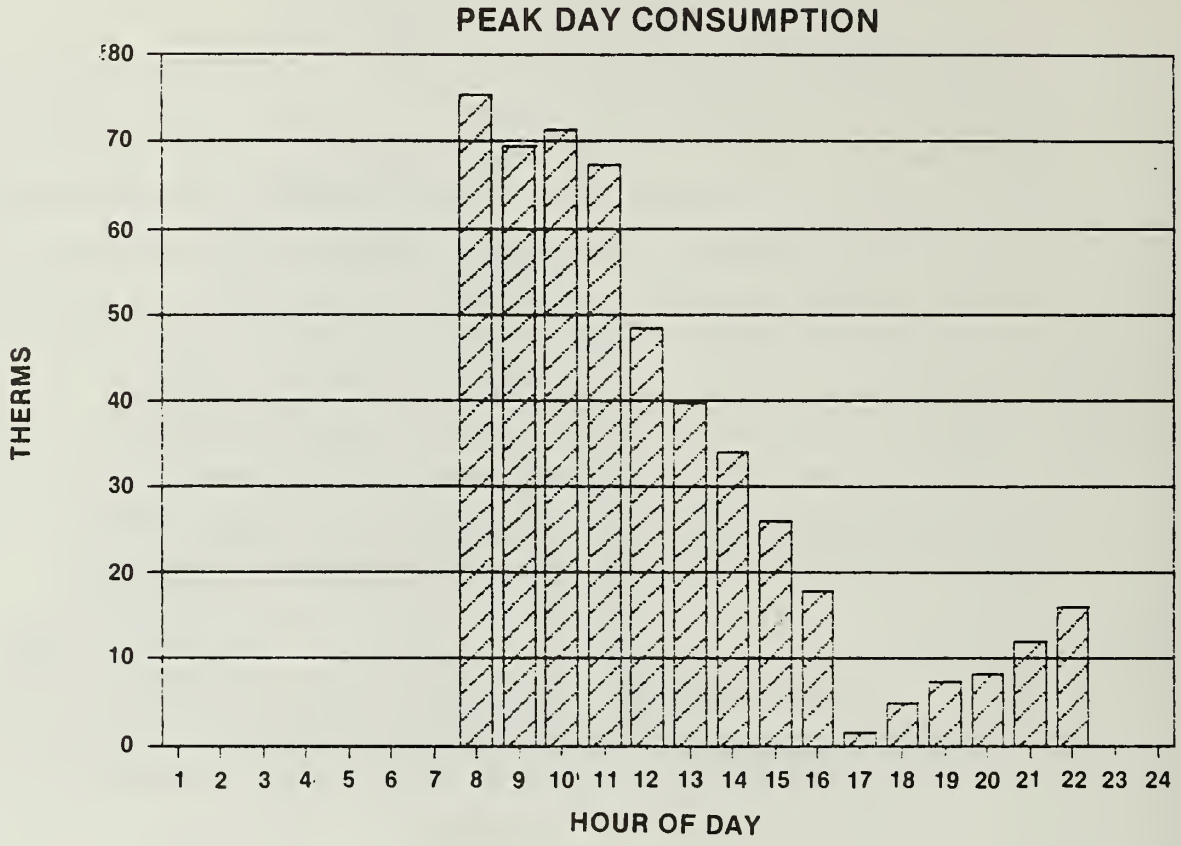
FIGURE 4

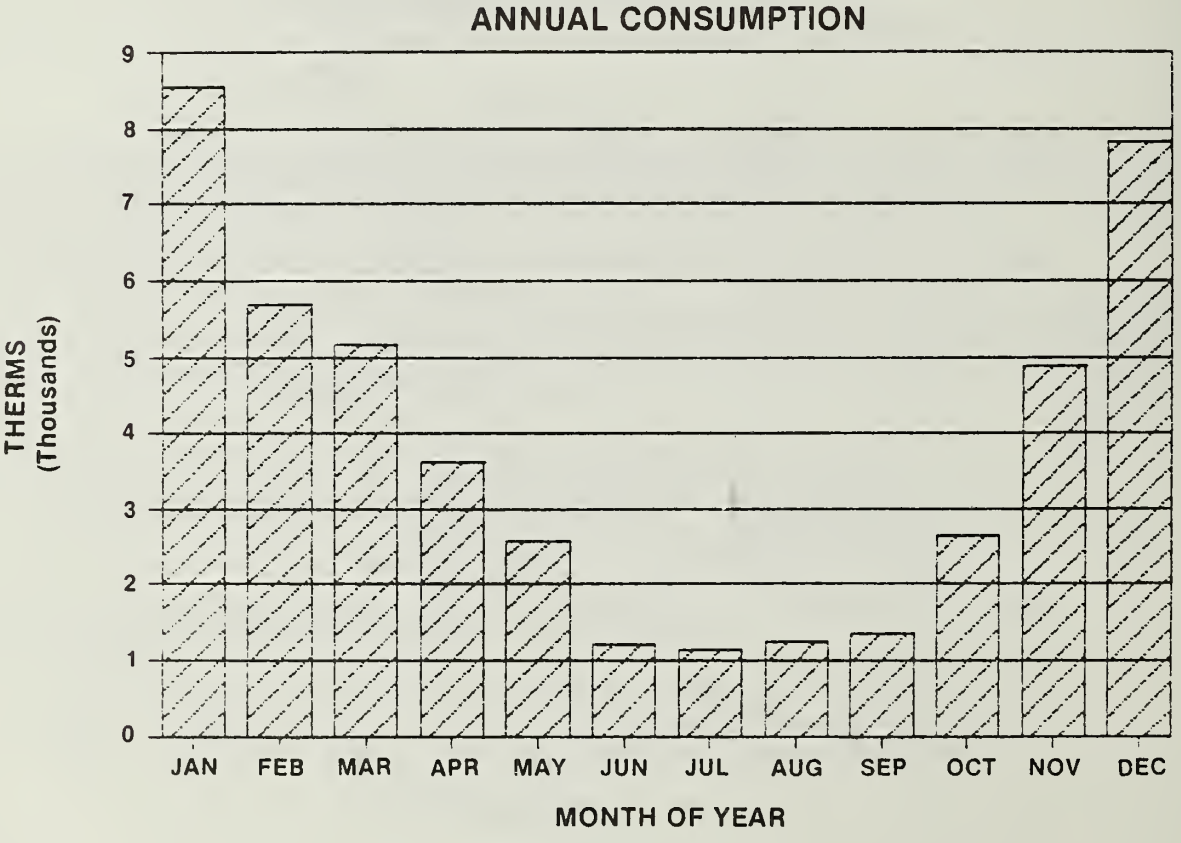




NATURAL GAS CONSUMPTION

FIGURE 5





12. Hazards	Yes	No	Discussed
*a. Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?	___	X	___
*b. Interfere with emergency response plans or emergency evacuation plans?	___	X	X
c. Create a potentially substantial fire hazard?	___	X	X

The project would not create a potential public health hazard through the production or disposal of harmful materials. An evacuation and emergency response plan would be developed as part of the proposed project (see D., Mitigation Measures, page 26). The project's emergency plan would be coordinated with the City's emergency planning activities. The project would not create a substantial fire hazard because it would incorporate more extensive fire protection measures than most buildings in the area to comply with more stringent code standards now in effect.

13. Cultural	Yes	No	Discussed
*a. Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study?	X	___	X
b. Conflict with established recreational, educational, religious or scientific uses of the area?	___	X	___
c. Conflict with the preservation of buildings subject to the provisions of Article 10 or (proposed) Article 11 of the City Planning Code	___	___	X

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

Archival research was conducted regarding the possibility of encountering artifacts on the site.[1] Archival research indicates that it is unlikely that prehistoric remains would be found on the site. The research indicates a reasonable potential for finding cultural resources from the early Gold Rush period on the site. Such a find could be considered of potential archaeological and historic significance. Impacts on archaeological resources will be discussed in the EIR.

The Department of City Planning has not, at the time of this writing, completed an inventory of architecturally significant buildings in the South of Market area.

Part of the project site, as mentioned previously, is in the New Montgomery-Second Street Conservation District. Although the buildings proposed for demolition are not rated as either significant or contributory to the architectural or historical significance of the area, demolition of the building on Lot 72 is within the conservation district boundaries. Project plans include an open plaza on lot 72, so no new building will be constructed at that location. The cultural significance of this building and its location within the conservation district will be discussed further in the EIR.

---

[1] Allen G. Pastron, Ph.D., "Cultural Resources Evaluation of the Second and Mission Street Office Tower Development Project, San Francisco, California, January 1986." This report is on file and available for public review at the Department of City Planning, 450 McAllister Street, San Francisco, CA.

C. OTHER

	Yes	No	Discussed
Require approval of permits from City Departments other than Department of City Planning or Bureau of Building Inspection, or from Regional, State or Federal Agencies?	___	X	___

D. MITIGATION MEASURES

	Yes	No	N/A	Discussed
1. If any significant effects have been identified, are there ways to mitigate them?	___	___	X	_____
2. Are all mitigation measures identified below included in the project?	X	___	___	_____

MITIGATION MEASURES INCLUDED AS PART OF THE PROJECT:

1. An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to ensure coordination between the City's emergency planning activities and the project's plan, and to provide for building occupants in the event of an emergency. The project's plan would be reviewed by the Office of Emergency Services and implemented by building management insofar as feasible before issuance of final building permits by the Department of Public Works.

2. The project sponsor would require the general contractor to sprinkle demolition sites with water continually during demolition activity; sprinkle unpaved construction areas with water at least twice per day to reduce dust generation by about 50%; cover stockpiles of soil, sand, and other such material; cover trucks hauling debris, soil, sand, or other such material; and sweep streets surrounding demolition and construction sites at least once per day to reduce TSP emissions. The project sponsor would require the general contractor to maintain and operate construction equipment so as to minimize exhaust emissions of TSP and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs (to reduce emissions) for equipment that would be in frequent use for much of a construction period.

3. A detailed foundation and structural design study would be conducted for the building by a California-licensed structural engineer and a geotechnical consultant. The project sponsor would follow the recommendations of these studies during the final design and construction of the project.

4. During dewatering any groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, in order to reduce the amount of sediment entering the storm drain/sewer lines.

5. The final soils report would address the potential settlement and subsidence impacts of dewatering. Based upon this discussion, the soils report would contain a

determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Groundwater observation wells would be installed to monitor the level of the water table and other instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be used to halt this settlement. The project sponsor would delay construction if necessary. Costs for the survey and any necessary repairs to service under the street would be borne by the project sponsor.

6. In order to reduce obtrusive light or glare, the project sponsor would use no mirrored glass on the building.

7. As recommended by the Environmental Protection Element of the San Francisco Master Plan, an analysis of noise reduction measurements would be prepared by the project sponsor and recommended noise insulation features would be included as part of the proposed building. For example, such design features would include fixed windows and climate control.

E. ALTERNATIVES

Alternatives to the proposed project include the following:

A. No Project: The site would remain in its existing condition with all existing buildings remaining.

B.1. Planning Code Conforming Project: A project in strict conformance to the City Planning Code, including TDRs and underground parking to the degree allowed by the Code.

B.2. Planning Code Conforming Project Without TDRs: A project in strict conformance to the City Planning Code, including no TDRs or exceptions and containing underground parking to the degree allowed by the Code.

B.3. Planning Code Conforming Project without Parking: A project in strict conformance to the City Planning Code, including no TDRs or exceptions and no underground parking.

C. No Parking Project: A project identical to the proposed project but not including any parking.

D. No Demolition in Conservation District Project: A project similar to the proposed project but not resulting in the demolition of the building in the New Montgomery - Second Street Conservation District.

F. MANDATORY FINDINGS OF SIGNIFICANCE	Yes	No	Discussed
*1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history?	___	X	___
*2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	___	X	___
*3. Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.)	X	___	___
*4. Would the project cause substantial adverse effects on human beings, either directly or indirectly?	___	X	___
*5. Is there a serious public controversy concerning the possible environmental effect of the project?	___	X	___

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

G. ON THE BASIS OF THIS INITIAL STUDY:

___ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

___ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers __, in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

✓ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Sally Maxwell
for Barbara W. Sahm
Environmental Review Officer

for

Dean L. Macris
Director of Planning

Date: Feb. 6, 1986

*Derived from State EIR Guidelines, Appendix G, normally significant effect.

DISTRIBUTION LIST

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John Elberling

South of Market Association
EOC Office
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Mr. Roland Gaw

Canon Kip Community House
Eugene Coleman, Director

Central City Council
Walter Knox, Chairman

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c/o D. Monarch III

KSW Properties

Patrick & Co.

Sophie Zinman

Selma TR Epstein

Stevenson & Son

Attorneys Printing Supply Co.

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Walter D.N. & E. & Co.

Pacific Telephone & Telegraph Co.

PROJECT SPONSOR

David Fitzpatrick
Markborough California Properties

PROJECT ARCHITECT

James Titus
Skidmore, Owings and Merrill

PROJECT ATTORNEY

Timothy Tosta
Tosta & Browning

APPENDIX B
WIND STUDY METHODOLOGY

This section is based on a study entitled "Wind Tunnel Analysis for the Proposed Second and Mission Project", April, 1986, and additional wind tunnel analyses during May and June, 1986, prepared by Donald Ballanti, Certified Consulting Meteorologist, with the assistance of Fred Bauman, P.E. and Nora Watanabe, Wind Tunnel Consultants. The complete report and background letters are on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street.

Introduction

Wind tunnel tests were conducted for wind on the project site in its current condition (and approved projects in the vicinity) and with the proposed project in relation to the Section 148 wind performance criteria of the City Planning Code (adopted by the City Planning Commission on November 29, 1984).

Tests were performed on a 1 inch = 30 feet scale model of the project site and surrounding several blocks. Approved and under construction buildings included in the modelled area were New Montgomery Place, 49 Stevenson, 71 Stevenson, 100 First Street and 90 New Montgomery.

The study was conducted in the Boundary Layer Wind Tunnel in the Building Science Laboratory at the Department of Architecture, University of California, Berkeley. The interior dimensions of the wind tunnel duct are 5 feet high, seven feet wide and 45 feet long. The test area is 36 feet downwind of the inlet, with the fan downwind of the test area.

Simulation of the boundary layer in the natural wind is achieved by turbulence generators placed upwind of the test section. This allows for adjustment in the wind characteristics to provide for different model scales and varying terrain upwind of the project.

The velocity measurements in this study were made with a TSI model 1266 hot wire anemometer. For each measurement point, the anemometer output was sampled and

digitized at a rate of 10 data points per second for a duration of 50 seconds. Digital data processing to calculate the mean velocity and turbulence intensity were carried out on a DEC RT-11 laboratory computer. A smoke generator was used for the flow visualization phase of the testing.

Methodology and Assumptions

Winds were tested for four wind directions: northwest, west-northwest, west and west-southwest. The wind direction was varied by rotating the model within the wind tunnel to simulate the desired wind direction.

The mean wind speeds at street level were determined by a wind tunnel test, and a comparison of the test results with statistically representative records of wind data collected atop the Old Federal Building. Data describing the speed, direction and frequency of occurrence of winds were gathered at the Old Federal Building, at 50 United Nations Plaza, during the six-year period 1945 to 1950. Hourly measurements have been tabulated for each month (averaged over the six years) in three-hour periods using seven classes of wind speed and 16 compass directions. Analysis of these data shows that during the hours from 6:00 a.m. to 8:00 p.m., about 62% of the winds blow from three of the 16 directions, as follows: northwest (NW), 10%; west-northwest (WNW), 14%; west (W), 35%; west-southwest (WSW), 2%; calm conditions occur 2% of the time.

Each wind tunnel test measurement results in a ratio that relates the speed of ground-level wind to the speed at the reference elevation, in this case the height of the old San Francisco Federal Building. The wind that is measured is an equivalent wind speed value which is adjusted to include the level of gustiness or turbulence present.

The frequency with which a particular wind velocity is exceeded at any test location is then calculated by using the measured wind tunnel ratios and a specified ground speed to determine the corresponding reference wind speed for each direction. In general, this gives different reference speeds for each direction (NW, WNW, W, WSW, and Other). The wind data for San Francisco are then used to calculate the percentage of the time each reference speed would be exceeded. The sum of these is the total percentage of the time that the specified ground-level wind speed would be exceeded. A computer is used to calculate the total percentages for a series of wind speeds until the speed corresponding to the speed exceeds 10% of the time is found. Throughout the following discussion, the

wind speeds reported refer to the equivalent wind speeds that would be exceeded 10% of the time.

Study Results

The results of the wind tunnel analysis are presented in tabular form in the figure on the following page. The values presented are the estimated wind speeds that would be exceeded 10% of the time between the hours of 7:00 a.m. and 6:00 p.m. on an annual basis.

Follow-up Studies and Results

Experiments were conducted to develop an alternative that would decrease wind speeds around the project site. Alternative 2 (page 139) included a reduced-height main tower with a three-story corner building. The impacts of this alternative would be similar to those of the proposed project. Exceedances of the pedestrian comfort criterion would occur along Mission, Second and Minna Streets, but no exceedances of the hazard criterion were found.

Alternative 5 (see page 147) was a design that included the 457-foot main tower with a six-story low-rise at the corner of Second and Mission. This alternative was found to reduce winds at the corner of the Mission/Second intersection adjacent to the site but to increase them adjacent to the site along Second, Mission and Minna Streets. Also, winds along Minna Street were found to exceed the hazard criterion of 26 mph no more than one hour per year.

An alternative was developed that was designed from wind impact mitigation principles. Its design was intended to mitigate winds along Mission, Second and Minna Streets. Large setbacks were included in the Mission and Second Street frontages to reduce wind impacts along these streets. To reduce winds along Minna Street, the main tower was made more slender (90 feet on a side) and located atop the lowrise base with setbacks on all sides. Despite these features, this alternative resulted in only minor reductions in wind impacts, with continued exceedances of the pedestrian wind criterion along Mission, Second and Minna Streets.

Evaluation of Results

In the opinion of Donald Ballanti, Certified Consulting Meteorologist, the fact that the wholesale changes to the tower dimensions and shape suggest that it is the base and not the tower that controls wind in the vicinity of the site. The wind acceleration along Minna Street is apparently due to the interaction of an area of low pressure created downwind of the structure with the narrow gap between existing buildings at the Minna/Second intersection. Since this narrow gap cannot be changed, attempts to reduce wind along Minna Street would have to focus on reducing the strength of the low pressure zone formed by the project.

A building that would accomplish the desired result of reducing winds along Minna, Mission and Second Streets would have to have a very low base, perhaps only one floor. The highrise tower would have to be slender, and located in the center of the site, so that any wind accelerations generated would occur along the rooftop of the lowrise base. A cylindrical tower section would probably have the least potential for accelerating ground winds. Any open space located on the rooftop might need partial enclosure to ensure that it would meet the comfort criterion for seating areas.

K INGLESIDE - VAN NESS STATION
Wednesday, September 9, 1981 - 8:00 A.M. - Inbound

N JUDAH - VAN NESS STATION
Wednesday, September 16, 1981 - 5:00 P.M. Outbound

38 GEARY - VAN NESS AVE. AND O'FARRELL ST.
Wednesday, October 21, 1981 - 9:00 A.M. - Inbound

38 GEARY - VAN NESS AVE. AND GEARY BLVD.
Wednesday, October 21, 1981 - 4:20 P.M. - Outbound

SOURCE: ESA

FIGURE C-1:
PHOTOS OF PEAK MUNI LOADING CONDITIONS

M OCEAN VIEW - CIVIC CENTER STATION
Wednesday, September 9, 1981 - 8:20 A.M. - Inbound

L TARAVAL - VAN NESS STATION
Wednesday, September 16, 1981 - 4:50 P.M. - Outbound

14 MISSION - MISSION STREET AND SOUTH VAN NESS AVE.
Tuesday, September 29, 1981 - 5:45 P.M. - Outbound

N JUDAH - DUBOCE AND CHURCH
Wednesday, June 8, 1983 - 8:00 A.M. Inbound

SOURCE: ESA

FIGURE C-1 (CONTINUED):
PHOTOS OF PEAK MUNI LOADING CONDITIONS

30X MARINA EXPRESS - BAYSHORE AVE. AND ARIETA AVE.
Wednesday, October 7, 1981 - 8:00 A.M. - Inbound

J CHURCH - CHURCH ST. AND DUBOCE AVE.
Tuesday, September 29, 1981 - 9:00 A.M. - Inbound

SOURCE: ESA

FIGURE C-1 (CONTINUED):
PHOTOS OF PEAK MUNI LOADING CONDITIONS

PEDESTRIAN ANALYSIS

The pedestrian analysis has been conducted following methods developed by Pushkarev and Zupan in Urban Space for Pedestrians (MIT Press, 1975). Table C-2 shows the relationship between pedestrian flow rates and the flow regimes (categories) used to describe levels of operation. Figure C-2 shows photographs of pedestrian conditions that correspond to the flow regimes.

TABLE C-2: PEDESTRIAN FLOW REGIMEN

FLOW REGIME/a/	CHOICE	CONFLICTS	FLOW RATE (p/f/m)/b/
Open	Free Selection	None	less than 0.5
Unimpeded	Some Selection	Minor	0.5 to 2.0
Impeded	Some Selection	High Indirect Interaction	2.1 to 6.0
Constrained	Some Restriction	Multiple	6.1 to 10.0
Crowded	Restricted	High Probability	10.1 to 14.0
	Design Limit - Upper Limit of Desirable Flow		
Congested	All Reduced	Frequent	14.1 to 18.0
Jammed	Shuffle Only	Unavoidable	Not applicable/c/

/a/ Photographs of these conditions are shown in Figure C-2.
/b/ P/F/M = Pedestrians per foot of effective sidewalk width per minute.
/c/ For Jammed Flow, the (attempted) flow rate degrades to zero at complete breakdown.

SOURCE: Urban Space for Pedestrians, MIT Press, 1975, Cambridge, MA.

The borderline between IMPEDED and UNIMPEDED FLOW, with about 130 sq ft (12 m^2) per person, or a flow rate of about 2 people per min per ft (6.5 per m) of walkway width. Individuals as well as couples visible in this view have a choice of speed and direction of movement. This rate of flow is recommended for design of outdoor walkways in office districts and other less dense parts of downtown areas.

The uneven nature of UNIMPEDED FLOW. While the people walking in the plaza which is 17 ft (5.2 m) wide, compared to 23 ft (7 m) in the preceding picture have almost 130 sq ft (12 m^2) per person on the average, the space allocation for the eight individuals in the foreground is closer to 70 sq ft (6.4 m^2). Thus, indirect interaction with others is still quite frequent in the upper range of UNIMPEDED FLOW.

The midpoint of the IMPEDED FLOW range, with about 75 sq ft (6.9 m^2) per person, or a flow rate of about 4 people per min per ft (13 per m) of walkway width. Physical conflicts are absent, but pedestrian navigation does require constant indirect interaction with others. This rate of flow is recommended as an upper limit for the design of outdoor walkways in shopping districts and other dense parts of downtown areas.

Lower range of UNIMPEDED movement, approaching OPEN FLOW. About 350 sq ft (32.2 m^2) per person, or a flow rate of less than 1 person per min per ft (3.3 per m) of walkway width. Complete freedom to select the speed and direction of movement; individuals behave quite independently of each other. For a design standard based solely on pedestrian density, this amount of space can be considered excessive.

JAMMED FLOW. Space per pedestrian in this view is about 3.8 sq ft (0.35 m^2). This is representative of the lower half of the speed-flow curve, where only shuffling movement is possible and even the extremely uncomfortable maximum flow rate of 25 people per min per ft (82 per m) of walkway width cannot be attained due to lack of space. Photograph by Louis B. Schlivek.

The threshold of CONGESTED FLOW. The first eleven people in the view have about 16 sq ft (1.5 m^2) per person, corresponding to a flow rate of about 15 people per min per ft (49 per m) of walkway width. The beginnings of congestion are evident in bodily conflicts affecting at least three of the walkers, and in blocked opportunities for walking at a normal pace.

The onset of CROWDED FLOW, with an average of about 24 sq ft (2.2 m^2) per person, or a flow rate of about 10 people per min per ft (33 per m) of walkway width. Choice of speed is partially restricted, the probability of conflicts is fairly high, passing is difficult. Voluntary groups of two, of which two can be seen in the picture, are maintained, but cause interference. Note also some overflow into the vehicular roadway in the background.

The midpoint of the CONSTRAINED FLOW range, with about 30 sq ft (2.8 m^2) per person, or a flow rate of about 8 people per min per ft (26 per m) of walkway width. The choice of speed is occasionally restricted, crossing and passing movements are possible, but with interference and with the likelihood of conflicts. The man in the dark suit seems to be able to cross in front of the two women in the foreground quite freely, but in the background near the curb people are having difficulty with passing maneuvers.

INTERSECTION ANALYSIS

The capacity analysis of each intersection at which a turning movement count was made utilized the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: A Planning Tool," by Henry B. McInerney and Stephen G. Peterson, January 1971, Traffic Engineering. This method is also explained in "Interim Materials on Highway Capacity", Transportation Research Circular No. 212, Transportation Research Board, January 1980). The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service (see Table C-3). For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio was calculated by dividing the existing volume by the capacity at Level of Service E.

TABLE C-3: VEHICULAR LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	less than 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting up-stream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: San Francisco Department of Public Works, Traffic Division, Bureau of Engineering from Highway Capacity Manual, Highway Research Board, 1965

TABLE C-4: TRAFFIC LEVELS OF SERVICE FOR FREEWAYS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.60
B	Level of Service B is in the higher speed range of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.	0.61-0.70
C	Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the highervolumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained.	0.71-0.80
D	Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
E	Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds (typically about 30 to 35 mph) than in Level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.91-1.00
F	Level of Service F describes forced flow operation at low speeds (less than 30 mph), in which the freeway acts as storage for queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion. In the extreme, both speed and volume can drop to zero.	1.00+

/a/ Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from information in the Highway Capacity Manual, Special Report 87, Highway Research Board, 1965.

APPENDIX D

AIR QUALITY

SAN FRANCISCO AIR POLLUTANT SUMMARY 1980-1984[1]

POLLUTANT	FEDERAL STANDARD[2]	STATE STANDARD[3]	1980	1981	1982	1983	1984
Carbon Monoxide (CO)							
1-hour average (ppm)	35	20					
Highest hourly average			10	8	--	--	--
No. of exceedances			0	0	0	0	--
8-hour average (ppm)	9	9					
Highest 8-hour average			7.5	5.3	9	5.1	10.8
No. of exceedances			0	0	1	0	1
Ozone (0_3)							
1-hour average (ppm)	.12[4]	.10					
Highest hourly average			0.09	0.07	.08	.13	0.10
No. of exceedances			0	0	0	1	0
Nitrogen Dioxide (NO_2)							
1-hour average (ppm)	None	.25					
Highest hourly average			0.17	0.11	.13	.13	0.14
No. of exceedances			0	0	0	0	0
Sulphur Dioxide ($S0_2$)							
24-hour average (ppm)	.14	.05					
Highest 24-hour average			0.018	0.016	.012	.018	0.03
No. of exceedances			0	0	0	0	0
Total Suspended Particulates (TSP)							
24-hour average (ug/m^3)	260	100					
Highest 24-hour average			173	103	126	117	--
No. of exceedances			6	1	3	4	--

SAN FRANCISCO AIR POLLUTANT SUMMARY 1980-1984[1]

POLLUTANT	FEDERAL STANDARD[2]		STATE STANDARD[3]	1980	1981	1982	1983	1984
Annual Geometric Mean (ug/m^3)[5]	75	60						
Annual Geometric Mean				52.1	56.0	57.0	55.0	60.0
Annual Exceedances				No	No	No	No	Yes[1]
Lead								
3-month Average (mg/m^3)	1.5	None		0.53	0.35	---	---	---
Highest 3-month average				0	0	---	---	---
No. of exceedances								
1-month Average (mg/m^3)	None	1.5	---	---	---	---		
No. of exceedances	---	---	---	---	---	---		

[1] 1980-84 data collected at 900 23rd Street.

[2] Federal standard is not to be exceeded more than once per year. Annual average standards are not be exceeded.

[3] State standards are not to be equalled or exceeded. The State 1-hour average CO standard was reduced from 40 ppm to 20 ppm in 1982.

[4] The federal standard is given in terms of Expected Annual Excesses, which is based on a 3-year running average.

[5] The annual Geometric Mean is a single number that applies to an entire year of data. "No" indicates TSP concentrations did not exceed 60 (ug/m^3).

Note: ppm = parts per million
ug/mg^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter

Source: BAAMQD, Air Pollution in the Bay Area by Station and Contaminant, March issues, 1980-1985; and California Air Resources Board, California Air Quality Data, Annual Summaries, 1979-1982.

APPENDIX E

FUNDAMENTAL CONCEPTS OF ENVIRONMENTAL NOISE

This section provides background information to aid in understanding the technical aspects of this report.

Three dimensions of environmental noise are important in determining subjective response. These are:

a. the intensity or level of the sound

b. the frequency spectrum of the sound

c. the time-varying character of the sound

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

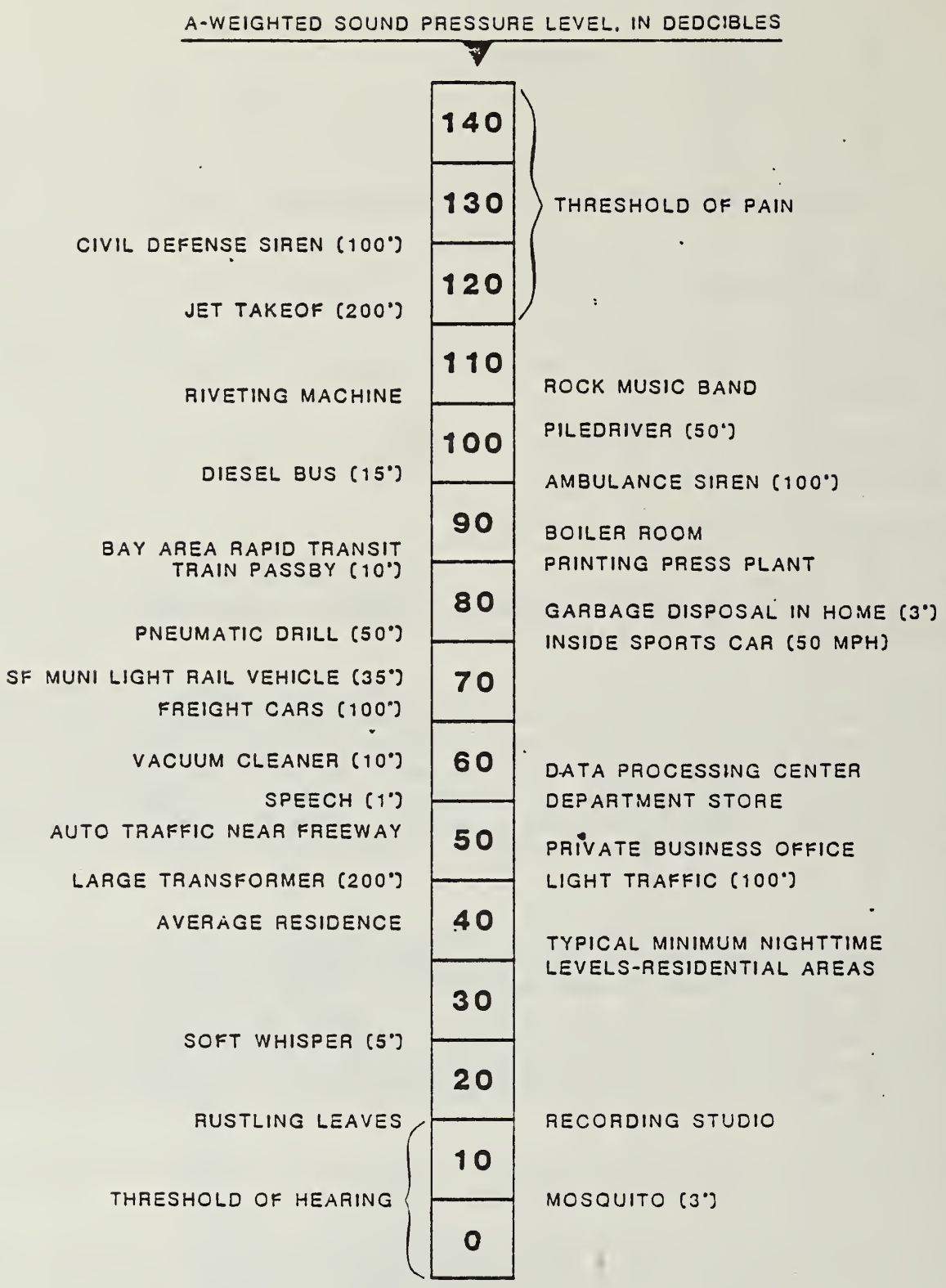
The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or Hertz (Hz). Most of the sounds which we hear in the environment do not consist of a single frequency, but of a broad band of frequencies, differing in level. The quantitative expression of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Fortunately, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively and severely deemphasizes the importance of frequency components below 1000 Hz, with mild deemphasis above 5000 Hz. This type of frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency midrange.

The weighting curve described above is called "A" weighting, and the level so measured is called the "A-weighted sound level," or simply "A-level."

The A-level in decibels is expressed "dBA"; the appended letter "A" is a reminder of the particular kind of weighting used for the measurement. In practice, the A-level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. All U.S. and international standard sound level meters include such a filter. Typical A-levels measured in the environment and in industry are shown in Figure 1.

Although the A-level may adequately describe environmental noise at any instant in time, the fact is that the community noise level varies continuously. Most environmental noise includes a conglomeration of distant noise souces which create a relatively steady background noise in which no particular source is identifiable. These distant sources may



TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

include traffic, wind in trees, industrial activities, etc. These noise sources are relatively constant from moment to moment, but vary slowly from hour to hour as natural forces change or as human activity follows its daily cycle. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities or single vehicle passages, aircraft flyovers, etc., which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used. The L10 is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L10 is considered a good measure of the "average peak" noise. The L50 is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period. The L50 represents the median sound level. The L90 is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period. The L90 is used to describe the background noise.

As it is often cumbersome to describe the noise environment with these statistical descriptors, a single number descriptor called the Leq is also widely used. The Leq is defined as the equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the time-varying sound level during the same time period. The Leq is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noises become very noticeable. Further, most people are sleeping at night and are very sensitve to noise intrusion.

To account for human sensitivity to nighttime noise levels a descriptor, Ldn, (day-night equivalent sound level) was developed. The Ldn divides the 24-hour day into the daytime of 7 a.m. to 10 p.m. and the nighttime of 10 p.m. to 7 a.m. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Ldn, then, is the A-weighted average sound level in decibels during a 24-hour period with 10 dBA added to the hourly Leqs during the nighttime. For highway noise environments the Leq during the peak traffic hour is approximately equal to the Ldn.

The effects of noise on people can be listed in three general categories:

1. subjective effects of annoyance, nuisance, dissatisfaction
2. interference with activities such as speech, sleep, learning
3. physiological effects such as startle, hearing loss

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Unfortunately, there is as yet no completely satisfactory measure of the subject effects of noise, or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance, and habituation to noise over differing individual past experiences with noise.

Thus, an important parameter in determining a person's subjective reaction to a new noise is the existing noise environment to which one has adapted: the so-called "ambient" noise. "Ambient" is defined as "the all-encompassing noise associated with a given environment, being a composite of sounds from many sources, near and far." In general, the more a new noise exceeds the previously existing ambient, the less acceptable the new noise will be judged by the hearers.

With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative sections of this report:

1. Except in carefully controlled laboratory experiments, a change of only 1 dBA cannot be perceived.

2. Outside of the laboratory, a 3-dBA change is considered a just-noticeable difference.

3. A change in level of at least 5 dBA is required before any noticeable change in community response would be expected.

4. A 10-dBA change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse change in community response.

Source : Charles M. Salter Associates, Inc., December 1982.